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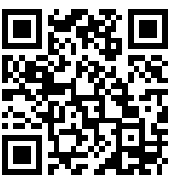

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TRAINING MANUAL
No. 2100–152

WAR DEPARTMENT,
WASHINGTON, *December 31, 1935.*

THE ARMY COOK

**Prepared under direction of
The Quartermaster General**

		Paragraphs	Page
SECTION I.	Introduction	1–5	1
II.	Elements of nutrition	6–9	2
III.	Foods	10–80	4
IV.	Principles and practice of cooking	81–122	55
V.	Rations	123–126	90
VI.	Kitchen management	127–132	91
VII.	Field cooking	133–136	97
APPENDIX I.	Recipes		111
II.	Tables and useful information		192

SECTION I

INTRODUCTION

	Paragraph
General	1
Importance of cooking	2
Cooking, purpose	3
Cooking defined	4
Methods of cooking	5

1. General.—Cooking is not difficult. Any person of average intelligence can cook a satisfactory meal provided he takes an interest and follows a recipe. As a cook gains experience, he learns to bring out attractive flavors by blending and seasoning foods. The cook's work is not finished when he has cooked the food; he must also learn to serve it in an attractive manner. This he learns to do by experience. There is no limit to what can be done to improve a mess by thought and care in seasoning, attractive serving, and inventing new combinations and mixtures of foods. The pleasant task of cooking becomes doubly interesting to the cook who is not satisfied with merely cooking well, but takes advantage of every opportunity of finding new and pleasing ways to prepare foods. To him cooking is not just a task—it is a pleasure.

2. Importance of cooking.—*a.* Good cooking is recognized the world over as a fine art, and a good cook always commands respect. Cooks who perfect themselves in their art are always in demand, and many have acquired wealth and fame. The Army cook holds a responsible position, as the health and contentment of troops depend largely on the quality of the cooking for their mess. A good cook takes pride in serving appetizing meals, in keeping him-

*This pamphlet supersedes TM 2100–152, Apr. 2, 1928 (including C1, Jan. 2, 1930).

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self and the kitchen clean and sanitary, and preventing waste. When he takes an interest in his duties and constantly turns out the best possible meals, it will promote health, contentment, and pride of organization in each soldier. On the other hand, poorly cooked meals will do more to make soldiers discontented than any other factor.

b. Food is a human need, and supplying meals frugally and well must continue to rank as an art worth mastering by any Army cook. That is why the Army maintains schools for training cooks, and why attendance at these schools has become popular. There is a difference between providing passable meals and meals that bring words of praise from the members of a mess. Every healthy man is highly pleased with a dish prepared by a master hand and is quick to praise the man who made it. As the cook gains experience and uses his imagination, he is able to produce each day culinary triumphs surpassing those of the day before. The same old dishes served in the same old way day after day may be entirely wholesome at all times, but they fail to arouse the interest of those who meet them at the table. New and delightful combinations of colors, odors, and flavors are to be had in cooking and should be used to break the monotony of a lifetime of three meals a day.

c. The competent cook, who tickles with new delights the palates of those whom he blesses with his culinary skill, will win and hold their confidence and esteem. In so doing he can demonstrate that savory dishes are truly economical, all manner of inexpensive yet wholesome foodstuffs being turned into lordly viands by the magic of his hands, and the leftovers of former meals being transformed into tasty and marvelous dishes.

d. Good cooking makes economical living and promotes health and happiness.

3. Cooking, purpose.—The purpose of cooking is to make foods more palatable and digestible and to kill any germs which might be present.

4. Cooking defined.—The term "cooking" includes preparation of food for cooking (by cutting, peeling, washing, seasoning, etc.), cooking by use of heat, and also preparation of dishes which are not cooked, as salads, ice cream, etc. Therefore, to be termed a "cook", it is necessary to be able to do all that is required in the kitchen.

5. Methods of cooking.—Different methods of cooking by heat are—

Baking	Frying	Sautéing
Boiling	Deep-fat frying	Searing
Braising	Pan broiling	Simmering
Brewing	Parboiling	Steaming
Broiling	Percolating	Stewing
Fricasseeing	Roasting	

All of these methods are described in this manual.

SECTION II

ELEMENTS OF NUTRITION

	Paragraph
Nutrition defined	6
Balanced diet	7
Functions of food	8
Balanced menu	9

6. Nutrition defined.—Nutrition may be defined as the use of food in the body for the following purposes:

a. To furnish energy.

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b. To build and repair the body.

c. To keep the body in a state of health.

To fully accomplish these purposes a balanced diet is required.

7. Balanced diet.—As shown in paragraph 6, the body requires food for certain purposes; therefore, if too much energy food is included in the diet and too little building and repairing food, the diet is not balanced. In the same way the diet is not balanced if it contains sufficient energy and building and repairing food but not enough health-protecting food. A balanced diet may be defined as one that supplies all the food required by the body for all purposes without lack or excess of any one kind of food.

8. Functions of food.—The foods which furnish energy, build and repair the body, and keep the body in a state of health are shown in the following chart:

BALANCED DIET CHART

Food function	*Class of food*		*Food used*
Furnish energy	Carbohydrates	Sugars	Sugars
			Sirups
			Molasses
		Starches	Flour
			Breadstuffs
			Potatoes and other starchy vegetables
			Cereals
	Fats		Butter, lard, meat fats, oils
Build and repair the body	Proteins		Lean meats
			Cereals
			Eggs
			Fish
			Milk and cheese
			Beans, peas
	Minerals		Leafy vegetables
			Fruits
			Whole grain cereals
			Milk
Protect health	Vitamins		Milk and cheese
			Fresh fruits and vegetables
			Canned fruits and vegetables
			Butter
			Eggs
			Whole grain cereals
			Liver, hearts, kidneys
	Bulk		Leafy vegetables
			Fruits
			Whole grain cereals

9. Balanced menu.—*a.* From the foregoing it is evident that to make a balanced menu it is necessary to provide sufficient food and to include each class of food, viz:

Carbohydrates	Proteins	Vitamins
Fats	Minerals	Bulk

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b. In order to have a balanced menu it is necessary to include each class of food shown in *a* above in the proper ratio. While it is not always possible to do this in every meal or daily menu, it is desirable. The next best method is to correct any lack of balance as soon as possible. For example, if the menu for Monday contained a large ratio of starchy foods (as potatoes, canned corn, bread, etc.) and sweet desserts, and little or no meat, the menu for that day would not be balanced, as it would contain an excess of carbohydrates and be lacking in protein. This can be corrected by serving more meat and less starchy food on Tuesday. In actual practice most meals or menus for 1 day do contain some food of each class; for example, if a meal or menu for 1 day contains meat, potatoes, bread, butter, and a raw leafy vegetable, it provides protein, fat, carbohydrate, minerals, vitamins, and bulk. However, to determine whether these classes of foods are present in exactly correct proportions requires mathematical computations to determine the exact weights eaten by each soldier. The method of determining whether food of each class is included in exactly the proper quantity by weight is beyond the scope of this manual. Tables showing the composition of foods and the method of computation to determine if a meal or a menu is balanced appear in several publications.

c. A menu which is not balanced over a long period of time will endanger the health of troops. The best means of guarding against this is to follow the general rule of serving fresh leafy vegetables, fresh fruits, and fresh milk daily. When this is done, the mess has gone far to guard against those diseases which are caused by an unbalanced diet.

d. In deciding whether the menu provides sufficient food, the first point to consider is the kind of work being done. A soldier at drill or on fatigue duty expends more energy and requires more food than a soldier sitting at a desk performing clerical duties. In campaign or in the field every soldier normally expends more energy than in garrison and, therefore, requires more food. The ration is more than ample to provide sufficient food for all conditions, and there is never any necessity for serving too little food in a properly conducted mess.

SECTION III

FOODS

	Paragraph
Purchase of foods for the mess	10
Inspection	11
Storage of foods	12
Various foods; kinds, qualities, uses, etc	13
Meat	14
Beef	15
Meat cutting, general	16
Beef cutting	17
Wholesale market cuts of beef for small messes	18
Mutton	19
Veal	20
Frozen meats and fish	21
Sausage	22
Smoked meats	23
Pork cuts	24
Hearts, livers, and kidneys	25
Fish	26
Poultry	27
Baking powder	28

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	Paragraph
Baking soda	29
Beans, dry	30
Breakfast foods, cereal	31
Butter	32
Canned foods	33
Cereals, breakfast	34
Cheese	35
Chocolate	36
Cocoa	37
Coffee	38
Condiments other than spices	39
Corn meal	40
Cornstarch	41
Eggs	42
Extracts, flavoring	43
Flour	44
Fruits, dehydrated (very dry)	45
Fruits, dried or evaporated	46
Fruits, fresh	47
Garlic	48
Gelatin	49
Grits, hominy	50
Ice cream	51
Jams, jellies, preserves, and fruit butters	52
Lard and lard substitute	53
Lard replaced by rendered or other fats	54
Macaroni, noodles, spaghetti, etc	55
Mayonnaise	56
Milk, condensed or evaporated	57
Milk, fresh	58
Milk, powdered or dried	59
Oils, cooking	60
Oils, salad	61
Olives	62
Onions, dry	63
Pickles	64
Potatoes, irish	65
Potatoes, sweet	66
Rice	67
Salad dressings	68
Salt	69
Sauerkraut	70
Sirup	71
Spices	72
Starch	73
Sugar	74
Tapioca	75
Tea	76
Vegetables, dehydrated	77
Vegetables, fresh	78
Vinegar	79
Yeast	80

10. Purchase of foods for the mess.—*a.* The cook is not required to make purchases but may be called on to report what is needed. He must remember that it is not necessary to carry a large stock of food. It is especially important to avoid purchase of large quantities of those foods which spoil readily. Therefore, the cook should become familiar with the keeping qualities of all the foods used in a mess, not only to aid in preventing purchases of too large quantities but also to insure that foods on hand are consumed before spoiling.

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b. Most cooks have a good general knowledge of the keeping qualities of foods. They know that such foods as fresh meats, eggs, fish, milk, butter, most fruits, and many vegetables do not keep long and must be purchased in small quantities and consumed within a short period. They must be on the alert to see that all perishable foods are consumed before they have time to spoil. Allowing foods to spoil is always inexcusable.

c. The keeping qualities of some other foods are not so well known but are explained in this manual. For example, canned fruits and vegetables of the acid type, as cherries, pineapple, most berries, sauerkraut, and tomatoes, do not keep so well as the nonacid canned foods, such as corn, peas, and peaches. Therefore, the keeping quality of each food must be known in order to insure that it will be used before it has had time to spoil.

11. Inspection.—*a.* Although the quartermaster inspects all foods when received by him, this does not relieve mess personnel from the responsibility of inspection when received in the mess. In the absence of the mess sergeant it becomes the duty of the cook on shift to receive, inspect, sign for, and properly store all food items received, unless other definite arrangement has been made by the organization commander.

b. Mess personnel should see that all food received in the mess is clean, sanitary, wholesome, in full weight and measure, and of the grade required by Government specifications. Food which is decomposed or rotten, insect infested (wormy), moldy, musty, etc., should not be accepted. While it is not expected that mess personnel be experts in determining whether the grade is that required by Government specifications, whenever it is suspected that food delivered is below the required grade, the matter should be reported to the organization commander. Discrepancies in weight, measure, or count should be noted on the delivery ticket or invoice before the foods are accepted. A few minutes spent in making the proper inspection of foods at the time of delivery will insure receipt of clean, sound, and wholesome food and will result in an annual saving of many dollars to the mess.

c. It is especially important to inspect for condition all highly perishable foods as meats, fish, poultry, fresh milk, fresh fruits and vegetables, butter, eggs, etc. It also is important to inspect canned foods to see that there are no swelled or leaky cans and to inspect cereals to see that there are no insects or worms present. Examples of foods which should not be accepted are slimy, evil smelling, or bruised meats, fish, and poultry; scabby or rotten potatoes; wilted or badly rusted lettuce; scaly or spotted apples; bruised peaches; swollen or leaking canned foods; and insect-infested or wormy flour or cereals.

d. Accurate scales should be available in every mess. The Government contracts for net weights—that is, the weight of the food with weight of the container deducted. A mess should not pay for something it does not receive. The weight of wrapping paper, burlap bags, cardboard containers, etc., should be deducted when checking weights.

e. Meat which has spoiled or is starting to spoil has an unmistakable odor and usually is slimy on the surface. In carcass beef, spoilage starts first on the inner side under the skirt or where portions of the meat touch each other. A test to reveal the beginning of spoilage in fresh meat is the knife-blade test. Thrust a knife blade through the flesh until the point strikes the hip or shoulder joint. Withdraw the knife and smell the point of the blade immediately. Putrefaction usually starts at the joint and causes a foul odor. If the meat is spoiled, the incision made by the knife blade will remain open and the blade

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is easily withdrawn. In any case of doubt the decision should be made by a qualified inspector.

f. Spoilage of canned food is generally indicated by swelled cans. The contents of a can with swelled or bulged ends or sides should never be served. Starchy vegetables, as corn, pumpkin, squash, etc., sometimes spoil without swelling the can, but on opening the can the spoiled condition is unmistakable, as the odor and taste are very disagreeable. (See par. 33*g*.)

12. Storage of foods.—*a.* All foods spoil more rapidly in warm temperatures than in cold. This especially applies to highly perishable foods, as meats, fish, butter, eggs, milk, etc. Spoilage of most foods is hastened by dampness. In general, foods keep best when dry and cold.

b. Refrigeration.—(1) The purpose of refrigeration in the mess is to prevent spoilage for a short period of time and to chill certain foods to increase their palatability. The refrigerator should not be used as a storeroom; it should be used only for highly perishable items. Foods which are spoiled cannot be improved by being placed in a refrigerator. Dampness in the refrigerator is as bad for food as dampness anywhere else.

(2) To be assured that perishable foods, especially highly perishable foods as meats, fish, and milk, will keep in good condition over 24 hours, it is necessary to store them at temperatures below 50° F. The temperature of the ice-box type of refrigerator rarely is as low as 50° F. In hot weather the temperature of foods stored in this type of refrigerator may go considerably above 50° F., and this may result in spoilage of highly perishable foods in less than 24 hours.

c. Rules for refrigeration.—Store food in the refrigerator so that air can circulate freely around it. However, food can be kept in better condition by observing the following simple rules:

(1) See that the refrigerator is—

(*a*) *Tight*—that all doors fit tightly. If repairs are needed, report the matter.

(*b*) *Well drained*—keep the drain pipe open. The pipe should be flushed thoroughly with hot water at least once each week in order to remove the slime which is sure to gather.

(*c*) *Kept clean and dry* by frequent brushing and wiping. The refrigerator should be thoroughly scrubbed out at regular intervals, usually once a week.

(2) Keep foods which readily absorb odors, as butter, fresh milk, etc., in covered containers, and keep them as far away as possible from foods which give off odors, as raw or smoked fish, young green onions, cheese, etc.

(3) Maintain good air circulation. Hang meats on the hooks; avoid piling. Avoid hanging meats so that the pieces touch each other. Do not pack vegetables too closely.

(4) Do not place food in the ice compartment, as this causes the ice to melt more rapidly and does not make the food keep better.

(5) Do not leave refrigerator doors open more than absolutely necessary. Ice is lost every time a door is open.

(6) Do not think that because food is kept in the refrigerator it will keep indefinitely.

(7) Use all left-over food as soon as possible.

d. Mechanical refrigerator.—(1) Lower temperatures can be maintained in the mechanical refrigerator than in an ice box. Mechanical refrigerators usually are dry inside because the moisture is turned to frost and adheres

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to the freezing unit. This frost acts as an insulator and lowers the efficiency of the refrigerator. Frost should be removed at frequent intervals by shutting off the power; never by the use of hot water or by scraping or chipping.

(2) The interior of a mechanical refrigerator usually is so dry that leafy vegetables and fresh fruits have a tendency to dry and wilt. Some mechanical refrigerators are equipped with special containers in which these foods are kept sufficiently moist to prevent this. In the absence of such special containers, it usually is sufficient to keep these foods in closed containers of some kind, or wrapped in paper, preferably waxed paper.

(3) Due to the lower temperatures, many foods such as butter, etc., which have a tendency to pick up undesirable odors or to become wilted can be kept in good condition in closed containers in a mechanical refrigerator provided air circulation around these containers is adequate. Containers should be arranged in staggered formation to permit free circulation of air around them.

e. Arrangement of food in the refrigerator.—(1) The food in the refrigerator should be neatly arranged in packages or containers which will not leak or easily tip over. Sticky, soiled sirup pitchers, bowls of jam, condiment jars, etc., should be cleaned before placing in the refrigerator. The containers should not be so full that the contents will spill or run over the sides. In general, flat, shallow dishes which take up too much space in proportion to their capacity and deep containers with narrow bases, such as tall bottles which tip over easily, should not be used. Avoid using several containers for the same kind of food, except in the case of individual salads, desserts, etc., which are being chilled for service at the next meal.

(2) Hot foods should not be put in the refrigerator, as this raises the temperature, wastes ice, and increases dampness. Containers with hot foods should be chilled by a cold-water bath before being placed in the refrigerator.

f. Storeroom.—(1) It is of great importance that the food storeroom be kept clean and sanitary, as otherwise it may become the starting point of sickness. All the foods on hand should be examined frequently for spoilage. This applies especially to canned foods, spoilage of which usually is indicated by swelled cans. Neat and orderly arrangement of foods in the storeroom is important and should be a matter of pride to the cook. The same kind of foods should be stored together so that foods available can be easily and quickly found. Open packages of foods should not be kept on the floor in dark corners, as it is in such places that they are more liable to become insect infested, or to be attacked by mold or rot.

(2) No spoiled food should be kept in the storeroom or the kitchen. Spoiled foods awaiting return to the seller should be set apart from other foods, preferably in boxes or closed containers, so they will not contaminate other foods.

(3) Roasted and ground coffee should always be kept in a tightly closed container, as otherwise it loses strength rapidly.

(4) Dark corners and places under shelves, etc., should be examined frequently to determine whether there are any roaches, ants, etc., present. One of the best ways to keep down insects and vermin is *not* to leave any dirt or scraps of food, crumbs, etc., scattered about the kitchen or storeroom. Vermin naturally gather where they can get food.

(5) Many foods absorb odors, and many other foods such as onions give off strong odors. Keep such foods segregated (onions in slatted bins), and do not keep any articles such as varnish, kerosene, oily rags, etc., in the storeroom.

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13. Various foods; kinds, qualities, uses, etc.—Army messes use many different foods which are supplied or are available in different forms. Beef is usually supplied in quarters, fore or hind, and may be either chilled or frozen; poultry may be fryers, broilers, roasters, or stewing hens; flour may be hard or soft; milk may be fresh, canned, or dried; fruits and vegetables may be fresh, canned, or dried. Most foods may be used in many different ways, either alone or in combination with other foods. The several forms of the same food may each require a different handling. For example, frozen beef needs to be thawed before being cooked; dried fruits and dry beans require preliminary soaking; canned evaporated milk should be diluted with an equal amount of water to make it equal to fresh milk, etc. The cook is greatly aided in his work by a thorough knowledge of the foods which he prepares—their kinds, qualities, uses, etc.

14. Meat.—*a. General.*—The word "meat" is used to indicate those parts of food animals (cattle, calves, sheep, swine, and goats) which may be eaten by man. It includes the muscular tissues (lean meat) and the fat together with the bones to which these are attached. While the organs used for food, such as hearts, livers, spleens, and stomachs, are generally classed as meat, the United States Department of Agriculture requires that these be called meat products.

b. Value in the diet.—Meat contains about 20 percent protein and is the main source of body-building food, as most vegetable foods are comparatively low in protein. Beans and peas are exceptions, as they contain about as much protein as meat; however, meat protein is a better body-building food than the protein furnished by beans, peas, or any vegetable food. The food value of meat is but little affected by its tenderness. While less tender meat is digested more slowly, it has practically the same nutritive (food) value as tender meat. Less tender meat can be made tender by proper cooking. The fuel (energy-producing) value of meat depends on the amount of fat it contains; that is, the more fat the greater the fuel value. Canned meats are composed almost wholly of lean meat, as most of the fat is trimmed away in preparation for canning. Canned meat is, therefore, a good source of protein (body-building) food but is comparatively low in fuel (energy) value.

15. Beef.—*a. Importance in the mess.*—Beef is the most important food used in the Army mess. It probably is the most universally popular food and forms the main dish of many meals. For these reasons the Army cook should have a good general knowledge of the kind and quality of beef supplied for Army messes and of methods of cutting and use. This information is given in the following paragraphs.

b. Type used.—The carcasses (sides and quarters) desired for Army use are the beef (plump and meaty) type, as distinguished from the dairy (lean and bony) type, as carcasses of the beef type carry a greater proportion of meat to bone, and the flesh is of better quality.

c. Classes.—The classes of carcass beef are steers (males castrated when young), heifers (young females), cows, bulls, and stags (males castrated after they reach maturity). Steers are more desirable than any other class of beef for Army use because of their better conformation (shape and plumpness), better development of the best cuts, and better quality of meat with less waste. Army specifications permit the purchase of beef from steer carcasses only.

16. Meat cutting, general.—*a.* To cut meat to best advantage, proper tools are needed. Every mess where meats are cut should be equipped with a set

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of knives for various purposes; however, meat can be satisfactorily cut with a knife and saw if kept sharp. Butcher knives are best for cutting roasts and steaks. Boning knives, including at least one with a short, narrow blade, are best for removing bones. A saw is needed. A good butcher uses a cleaver very little. A hand meat hook is an aid in handling and boning beef. A hook is rather inconvenient to one not accustomed to it, but it becomes indispensable to one skilled or experienced in its use.

b. A good job of meat cutting cannot be done with dull tools. Saws, knives, and cleavers should be sharp. A butcher's steel is used only to keep the edges of knives straight, not to sharpen them. The sharpening should be done on a grindstone and finished on a smooth whetstone. Saws are sharpened by filing. Frequently the teeth of the saw need setting to give them the proper angle. This requires special equipment. The average person is not competent to set and sharpen meat saws. Retail butchers now rent sharp saw blades from tool supply houses for a nominal charge. As the blades become dull they are exchanged for sharp ones.

17. Beef cutting.—*a.* (1) In cutting beef carcasses, thought should be given to the suitability of different cuts for different purposes. Lean meat is not all of the same tenderness. In general, the muscles (lean meat) lying on the outside of the body are the ones used for work, such as walking, running, etc., while the muscles on the inside are used for supporting the body. The muscles used to move the body (round, shanks, shoulder) are practically always less tender than the supporting muscles (rib, loin, tenderloin). The muscles of motion, therefore, should be cooked slowly and for a long time, preferably in moist heat, as in pot roasts, stews, etc.; while supporting muscles can be made into steaks, oven roasts, etc., in which less cooking is necessary and dry heat may be used. (See par. 98.)

(2) The average steer carcass used in the Army mess weighs about 500 pounds. Each side weighs about 250 pounds. The average fore quarter weighs about 125 to 135 pounds, being a little heavier than the hind quarter. Each hind quarter weighs about 115 to 125 pounds.

b. For the most part carcass beef can be used to the best advantage in the Army mess if it is first boned. A few cuts can be utilized to good advantage with the bone in them. The following is an outline of what is believed to be the most practical method of beef cutting and utilizing the various cuts in the Army mess. The following figures show the arrangement of the bones in the fore and hind quarters and indicate where the cuts should be made.

Figure 2 gives an inside view of the beef fore quarter, showing the backbone (vertebrae), the ribs with their end cartilages, and the breastbone (sternum). Beef carcasses have 13 ribs on each side. They are numbered from 1 to 13, beginning at the front end. The usual commercial method of separating hind and fore quarters is by cutting between the twelfth and thirteenth ribs, which leaves one rib (the thirteenth) on the hind quarter and 12 on the fore quarter. The cartilages extending from the lower ends of the first 8 ribs are attached to the breastbone, while those extending from the lower ends of the remaining 5 ribs are not attached to the breastbone, but are held in place by the tissues of the plate.

Figure 3 shows an outside view of a beef fore quarter and outlines the position of the bones of the fore leg.

Figure 4 outlines the cuts recommended for cutting a fore quarter of beef in Army messes.

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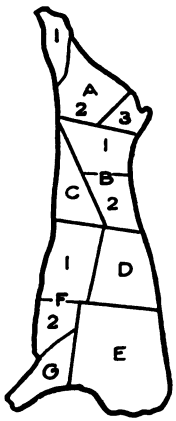

FIGURE 1.—Beef carcass (one side).

A, B, and C. Hind quarter:
- A. Round (rump and shank on):
  - 1. Hind shank.
  - 2. Buttock (round).
  - 3. Rump.
- B. Loin:
  - 1. Sirloin (loin end).
  - 2. Short loin.
- C. Flank.

D, E, F, and G. Fore quarter:
- D. Prime ribs.
- E. Square-cut chuck.
- F. Plate:
  - 1. Navel end.
  - 2. Brisket.
- G. Fore shank.

E, F, and G. Rattle.
E, F 2, and G. Kosher chuck.

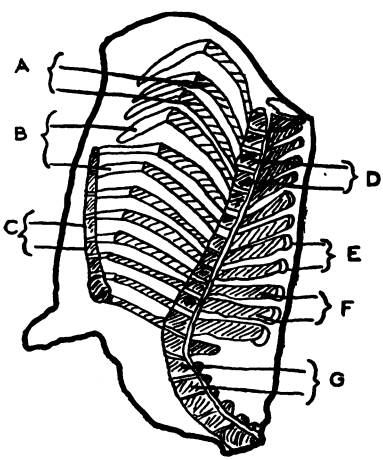

FIGURE 2.—Inside view of beef fore quarter.

A. Ribs.
B. Cartilages of ribs.
C. Sternum or breastbone.
D. Bodies of dorsal (back) vertebrae.
E. Cartilages (buttons).
F. Chine bones (spines of the dorsal vertebrae).
G. Cervical (neck) vertebrae.

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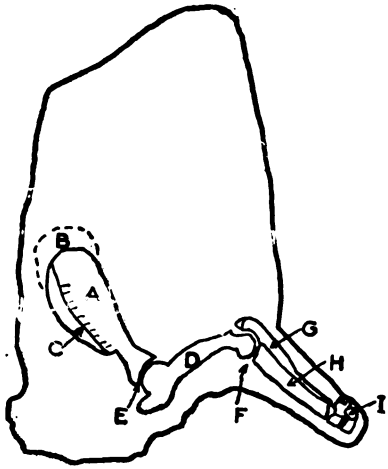

FIGURE 3.—Outside view of beef fore quarter, showing position of the bones of the fore leg.

A. Shoulder blade (scapula).
B. Cartilage of shoulder blade.
C. Spine of shoulder blade.
D. Humerus or arm bone.
E. Shoulder joint.
F. Elbow joint.
G. Ulna } fore-arm bones.
H. Radius }
I. Carpus or knee bones.

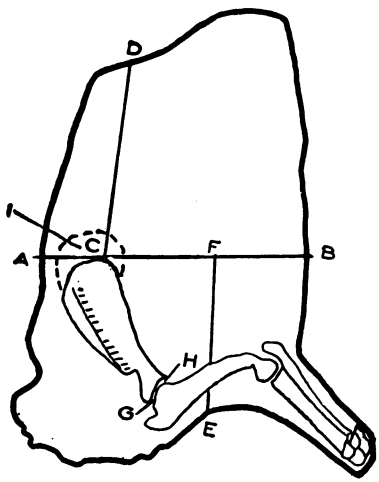

FIGURE 4.—Outside view of a beef fore quarter, showing division of cuts.

1. Cartilage of the shoulder blade.

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Figure 5 shows a kosher chuck (fore quarter with prime ribs and navel end removed). The relation of the clod to the bones of the fore leg is indicated by the dotted line.

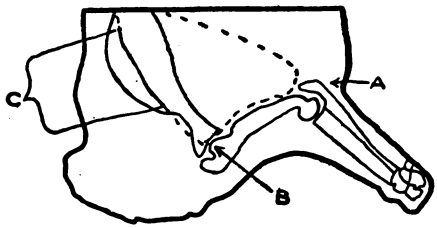

FIGURE 5.—Outside view of a kosher chuck, showing the clod (outlined by dotted line) and its relation to the bones of the fore leg.

A. Point of elbow.
B. Shoulder joint.
C. Spine of bladebone.

Figure 6 gives an inside view of a hind quarter of beef, showing the position of the aitchbone (pelvis) and the backbone (vertebrae).

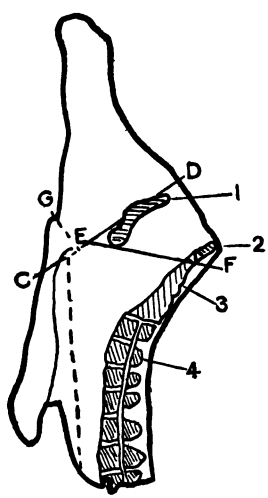

FIGURE 6.—Inside view of a beef hind quarter, showing the position of the aitchbone and the vertebrae (backbones), and the cuts made to separate the round, rump, and loin.

1. Aitchbone (pelvis).
2. Coccygeal vertebrae (tail bones).
3. Sacral vertebrae (sirloin vertebrae).
4. Lumbar vertebrae (short loin vertebrae).

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Figure 7 gives an outside view of a hind quarter of beef, showing the arrangement of the bones of the hind leg and the thirteenth rib. It also shows the cut for removing the flank.

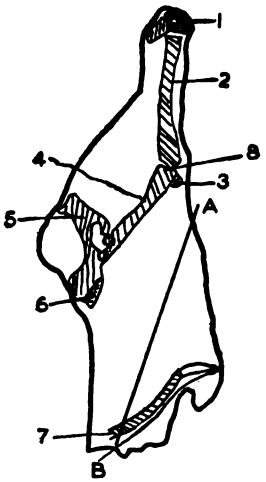

FIGURE 7.—Outside view of a beef hind quarter, showing the position of the bones of the hind leg, the thirteenth rib, and the cut for removing the flank.

1. Tarsus or hock bones.
2. Tibia or hind shank bone.
3. Patella or knuckle (stifle) bone.
4. Femur or round (thigh) bone.
5. Pelvis or hip bones.
6. Pin bone or point of the hip.
7. Thirteenth rib.
8. Stifle joint.

Figure 8 gives a view of the top end of the round, showing the natural divisions between the three major divisions of the round.

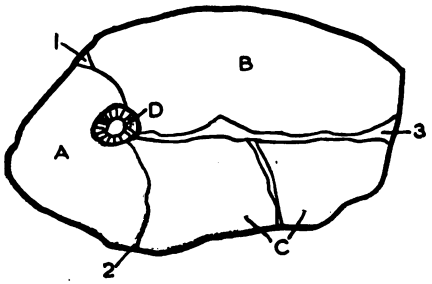

FIGURE 8.—End view of the round, showing natural divisions.

A. Knuckle.
B. Inside or top round.
C. Outside or bottom round.
D. Round bone (femur).
   1. Division between knuckle and inside.
   2. Division between knuckle and outside.
   3. Division between inside and outside.

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Figure 9 gives an inside view of a beef loin, showing the position of the tenderloin and the backbone (vertebrae) and also the division between the loin end (sirloin butt) and the short loin.

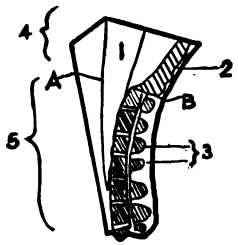

FIGURE 9.—Beef loin.

A–B. Line between the short loin and the sirloin butt.
1. Tenderloin.
2. Sacral vertebrae.
3. Lumbar vertebrae.
4. Sirloin.
5. Short loin.

Figure 10 shows the prime rib and method of boning.

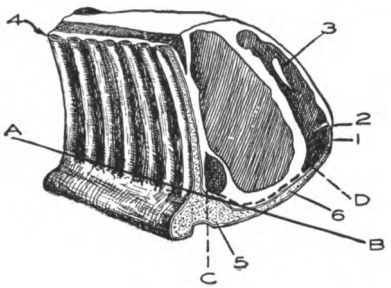

FIGURE 10.—Prime rib.

1. Button.
2. Ligament.
3. Cartilage of the shoulder blade.
4. Ribs.
5. Body of vertebrae.
6. Chine bone.

c. *Cutting the fore quarter.*—(1) With a knife, cut between the fifth and sixth ribs as outlined in figure 4 (line A–B). Then saw through the backbone (dorsal vertebrae) at A and through the breastbone (sternum) at B. This cut will run across the cartilage at the upper end of the shoulder blade (1, fig. 4). In a steer fore quarter this cartilage is soft and glistening white, while in a cow it nearly always is hard, bony, and dull grayish white. In a steer carcass this cartilage can usually be cut with a knife, but in a cow or bull carcass it is necessary to use a saw.

(2) Next separate the prime rib from the navel end. By use of knife and saw, this cut should be made just outside the eye or the thick part of lean meat in the angle between the chine bones (see fig. 10) and the ribs so as to leave all of the eye on the prime rib and at the same time leave as little of the rib bones as possible. This cut is indicated by the line C–D, figure 4. The prime rib so made is the most desirable cut of the carcass for oven roasting

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by dry heat, either as a standing roast or as a boneless roast. To make carving easier the chine bones (see fig. 10) should be removed from a standing roast. This is best done by sawing through the ribs just below their attachment to the backbone (line A–B, fig. 10), then remove the backbones (vertebrae and chine bones) by cutting close to the chine bones (follow dotted line C–D, fig. 10). The strip of ligament (2, fig. 10) running throughout the length of the cut just underneath the buttons of the chine bones can be loosened easily and stripped out. The cartilage of the bladebone (3, fig. 10) in the large end of the prime rib should also be removed with a knife, cutting as close to the cartilage as possible. This will leave only the ribs, and these will interfere very little with carving. To make a boneless rib roast the bones can be removed most easily by first removing the backbone as described above, then removing each rib separately, care being taken to remove as little meat as possible with the bones. A boneless rib roast so made does not need to be rolled or tied up or skewered. The prime ribs can also be made into excellent steaks. A prime rib cut by the Army method described above, and after chine bones, vertebrae, and bladebone cartilage have been removed, will weigh about 14 pounds. Since this is practically boneless meat, it is sufficient for one meal for 35 men.

(3) This method of cutting the prime ribs differs from commercial cutting. In commercial cutting the cut is made across the ribs from 4 to 6 inches out from the eye, and about 10 inches from the backbone. A prime rib roast so made is rather thin at one edge and, if boned, will not stand unless rolled and tied. In the Army method of cutting, described above, the cut across the ribs is only 2 to 3 inches out from the backbone; that is, only 2 or 3 inches of each rib is left on the prime ribs. This leaves a prime rib which consists of the eye and is nearly square in shape; therefore, it need not be rolled, even if boned. The greater portion of the rib bones are left on the navel end of the plate and are used for short ribs of beef, etc.

(4) The navel end of the plate can be used in a variety of ways. It can be made into a rolled roast by removing the bones and rolling it tightly and tying it securely. The rolled cut can then be cut into any desired lengths. The bones of the navel end are easily removed. The skirt and the meat covering the ribs on the inside should first be loosened with a knife as far as the cartilages at the ends of the ribs. Next a cut should be made with the knife point along the edges of each rib just to the depth of the rib. The last four ribs can then be removed separately, one at a time, cartilage and all, by simply cutting along the back surface of each. The remaining ribs are attached to the breastbone and they and the breastbone are removed together. The navel end can also be used as short ribs of beef or as stews, or the boneless meat can be used for hamburger, etc. The navel end left after cutting a prime rib by the Army method as described in (2) above will weigh about 25 pounds.

(5) Because of the high percentage of fat to lean meat the navel end is not well suited for oven roasting or hamburger. It can be used to better advantage as short ribs of beef, for stew, or simmered beef.

(6) Removal of the prime rib and navel end from the fore quarter leaves the kosher chuck (see fig. 1), which can be used without boning, if desired. To do this the brisket is first removed by sawing through the arm bone and the ribs, and removing the fore shank and brisket together (see fig. 4, line E–F). The square-cut chuck remaining can be partly made into steaks by cutting parallel either to the brisket or to the prime rib. However, the chuck does not pro-

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duce as good steaks as the loin, the round, or the prime ribs, due to the large amount of bone it contains. The chuck can be cut into fairly satisfactory roasts by cutting it into pieces of suitable size, parallel to the ribs. To aid in carving, the chine bones and the bladebone should be removed in the same manner as for prime ribs (see fig. 10). The chuck can also be used for braising, for stews, or for simmered beef. The kosher chuck from the average fore quarter of Army beef will weigh about 83 pounds with bones in and about 53 pounds after bones are removed.

(7) The chuck can, however, be used best if it is first boned. To do this the clod and the fore shank are removed before the brisket is removed. Figure 5 shows the outline of the clod. The clod is the fleshy portion of the chuck above the bladebone and running down to the elbow. To remove it the cut is started behind the point of the elbow joint (A, fig. 5) and follows the arm bone to the shoulder joint (B, fig. 5), then along the rear edge of the spine of the bladebone (C, fig. 5). The clod is then removed by pulling and cutting, starting at the thick end at the elbow joint and pulling toward the backbone. The square-cut chuck from the average fore quarter of Army beef will weigh about 52 pounds with bones in and about 35 pounds after bones are removed.

(8) The clod is a boneless piece of meat that may be used for a variety of purposes. If necessary, it can be cut into steaks, or may be used whole for an oven roast. However, it is one of the muscles of locomotion and contains a considerable number of tendons that are best cooked by slow, moist heat. Therefore, the clod is best utilized for braised or simmered beef, stew, hamburger, etc.

(9) The fore shank is removed by cutting through the shoulder joint (see line G–H, fig. 4), then cutting through the muscles underneath the arm bone. The fore shank may be used for soup bones by cutting it into suitable lengths, or the meat may be removed and the bones cracked and put in the stock pot. Shank meat is very tendinous and, therefore, not tender, and is best suited for hamburger, sausage meat, meat loaf, or other ground product. When shank meat is cooked slowly, the tendinous structures form a jelly that acts as a good binder for sausage, meat loaf, etc. The bones of the shank are rich in marrow and yield rich stock when cooked.

(10) The brisket (see fig. 1) is removed from the chuck by sawing and cutting as described in (6) above, except that, as the fore shank has been removed, it is not necessary to saw through the arm bone.

(11) The square-cut chuck is a good example of the grouping of tender and less tender muscles. The muscles of the outside are called the upper chuck and are made up of muscles of locomotion. The muscles of the inside are called the lower chuck; they are supporting muscles and are tenderer. There is a natural division between these groups of muscles and they can be readily separated. The muscles of the upper chuck are attached to the outside of the shoulder blade, and those of the lower chuck are attached to the inside surface of that bone.

(12) The first step in boning the chuck is the removal of the backbone and ribs (see fig. 2). Because of their irregular shape, the vertebrae (backbones) are the most difficult of all the bones of the carcass to remove. To remove them properly each bone should be loosened from the adjoining vertebrae on either side and removed separately. A very narrow-bladed knife of good quality and a keen edge is needed for this. It requires considerable experience and practice to accomplish this skillfully, but it can be accomplished by anyone with

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patience and perseverance. As soon as the location and shape of the bones have been learned the task becomes easier. This manner of removing the bones results in the least loss of meat, as the bones can be stripped almost completely of meat as they are loosened. The bones are cooked for soup stock.

(13) The muscles of the lower chuck are separated from those of the upper chuck by a natural division, that is, the two groups are distinct and separated by a thin partition of connective tissue that is easy to follow. After the bones have been removed the natural division between the upper and the lower chuck can be readily followed to the edge of the shoulder blade and the meat cut from the lower surface of that bone with a knife, leaving the bladebone (shoulder blade) attached to the upper chuck. The natural division can then be followed until upper and lower chuck are divided. The shoulder blade is then completely removed by cutting away the remaining muscles of the upper chuck.

(14) The lower chuck is tender and can be utilized for any purpose. It can be rolled and made into an excellent oven roast. The largest part, which is a continuation of the eye of the prime rib, can be made into steaks of very good quality. The upper chuck is less tender and is best used for braised beef, stew, simmered beef, or hamburger. However, it may be rolled and oven roasted, but should be given a long, slow cooking.

(15) The brisket contains a high percentage of fat and bone. The fat of the brisket differs from that of other parts of the beef carcass in that it does not render, or melt, in cooking as much as other fat. The brisket may be used for stew or braised beef. It makes excellent corned beef. Like the navel end of the plate, it is too fat and contains too much waste to be used for hamburger.

d. Cutting the hind quarter.—(1) The first step in cutting the hind quarter is to remove the flank. This is done by starting at the cod fat and cutting across to a point below the knuckle bone (see line C–E, fig. 6), then cut in a straight line from this point to the thirteenth rib at a point just outside the eye of the loin (line A–B, fig. 7). The flank is then completely removed by sawing through the thirteenth rib. The flank contains only a small amount of bone (part of the thirteenth rib), but it contains a high percentage of fat. The lean meat of the flank is coarse and usually less tender. It is best used as ground beef. As there is not enough flank steak in a carcass for a meal, this steak is usually used in the same way as the other lean meat of the flank. The fat is rendered. (See par. 82*b*.)

(2) The cod fat and the fat from the flank may be used to advantage in preparing oven roasts from lean portions of the carcass, such as the neck, the clod, or the rump, by cutting the fat into thin layers and skewering or tying it over the lean surface of the meat. This keeps the meat moist and juicy while cooking and adds to the palatability of the roast.

(3) In commercially trimmed beef the hanging tenderloin hangs beneath the kidney knob of the left hind quarter. It has no resemblance to the tenderloin, as it is very coarse and tough. It has about the same texture as the lean meat of the flank and can be used best for the same purpose, that is, as ground beef.

(4) Beef kidneys have very high food value and should never be thrown away. When rolled roasts are made, a small piece of the suet of the kidney knob can be rolled in the center of the roast to give it flavor and juiciness. Otherwise, the fat is rendered and used for fat stock. (See par. 82*b*.) The kidney is not of sufficient size to make a dish for the mess and can be used best

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by cutting it into small pieces and soaking it in cold water to remove the strong flavor, then adding it to other meat in stews or similar dishes, or it may be diced fine and added to gravy.

(5) The loin and the round are separated by sawing through the tip of the aitchbone (see line C–D, fig. 6), then cutting straight down to the round bone, sawing through that bone, and completing the separation of loin and round by cutting. This cut leaves the rump attached to the loin.

(6) In the mess, the round can be advantageously divided into its three major cuts—knuckle, inside, and outside. These are separated from each other by natural divisions that can be readily followed with a knife. The knuckle lies in front of the round bone (see A, fig. 8) and extends upward to the knuckle (stifle) joint (8, fig. 7). To remove the knuckle, first loosen it from the inside or top round (line 1, fig. 8) and from the outside or bottom round (line 2, fig. 8). Then loosen the knuckle bone (3, fig. 7) with a knife, and by pulling downward with a hook the knuckle will strip from the round bone (D, fig. 8). The inside and outside are easily separated (line 3, fig. 8). In removing the inside and outside from the shank bone (2, fig. 7), care should be taken not to include the shank meat, which is tough and tendinous. The round from the average hind quarter of Army beef, after the hind shank has been removed, will weigh about 43 pounds.

(7) The inside (top round) is the largest of the three chief cuts of the round. It is also the tenderest. The knuckle is next in tenderness, and the outside (bottom round) is the least tender. All of these cuts may be made into steaks or may be oven roasted, but the inside and knuckle are best for these purposes. The meat of the hind shank is similar to that of the fore shank. It is tendinous and tough and is suitable only for ground-meat dishes. The bones of the hind shank are used for soup stock.

(8) To use the loin to best advantage the rump should first be removed. This is done by cutting and sawing in a line running from the first tail bone across the loin just below the point of the aitchbone (line E–F, fig. 6). The meat of the rump lies almost entirely outside the pelvic bones. The rump may be cooked without boning, if necessary, or it may be boned. As the muscles of the rump are a continuation of those of the outside (bottom round), they are not tender and are more suitable for pot roasts or simmered beef than for oven roasts and steaks, though they can be used for the latter purposes. The rump from the average hind quarter of Army beef will weigh about 9½ pounds with bones in and about 5 pounds after bones have been removed.

(9) The loin is more suitable for steaks than for any other purpose. This cut contains the tenderest meat of the whole carcass. The whole of the loin can be steaked without boning, but as the steaks thus produced are so irregular in size, and cutting in this manner requires so much sawing, boning the loin is recommended. In boning the loin the tenderloin is removed first. (See 1, fig 9.) The tenderloin is largest at the end next the round and tapers to a point at the other end. It is first loosened from the backbone with a knife. Then by cutting underneath the large end of the tenderloin and pulling toward the small end it can be stripped from the bones of the loin. Next separate the loin end (sirloin) from the short loin (line A–B, fig. 9). Usually no sawing is necessary to make this separation, as the cut can be carried around the pin bone (point of the hip), and by making a nick with a knife between the sacral vertebrae (vertebrae of the sirloin) and the lumbar vertebrae (vertebrae of

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the short loin) (see fig. 9), the bones can be parted readily by bending the loin slightly after the meat has been cut. The sirloin and the short loin then can be easily boned, care being taken to keep as close to the bones as possible. Very little waste of meat results from this method of cutting the loin. It produces three cuts of boneless beef, all of which can be used for steaks. The boneless sirloin butt also makes an excellent oven roast. The bones of the loin should be used for soup stock. The loin from the average hind quarter of Army beef will weight about 38 pounds with bones in and about 31 pounds after bones have been removed.

18. Wholesale market cuts of beef for small messes.—In small messes where it is impractical to use beef in quarters, wholesale market beef cuts are available. These should be of the same class and grade required for carcass beef. Beef purchased as wholesale market cuts usually costs the organization more than when quarters are purchased. However, certain cuts can be readily obtained that will meet all the requirements of the mess at no increased cost. The square-cut chuck weighs just a little more than half the weight of the fore quarter. The round weighs just a little less than half the weight of the hind quarter. The square-cut chuck sells at an average of 15 to 20 percent less than carcasses, and the round sells at an average of 15 to 20 percent more than carcass price. These two cuts when bought alternately will cost just about the same as carcass beef, and will yield beef suitable for every purpose for which the whole carcass could be used. They have the advantage over carcass beef in having less waste because carcasses contain the skirt, flank, kidney knob, etc., which have waste and are not easy to use to advantage. Wholesale market cuts should be used in the same way as described for those cuts under carcass beef.

19. Mutton.—*a. Cutting.*—The arrangement of the bones in lamb and mutton carcasses is almost identical with that of beef. However, the cuts made from lamb and mutton carcasses differ in form and names from those of beef. Figure 11 shows the cuts ordinarily made. Lamb and mutton carcasses are small as compared to beef and are not split into sides; therefore, when divided into the different cuts, each cut includes corresponding parts of both sides. The legs correspond to the rounds, rumps, and sirloins of beef; the loin corresponds to the beef short loin (both sides); and the short rack, or hotel rack, to the prime ribs of beef (both sides). The fore quarters together are called a rack, and the two hind quarters together are called a saddle. The saddle and rack are divided between the twelfth and thirteenth ribs as in beef. Because of the smallness of the bones, lamb and mutton carcasses are easily cut.

b. Uses.—(1) Because of its distinctive flavor, mutton is not relished by many people until they have become accustomed to it. Lamb does not have such a pronounced flavor, but it is distinctive of the class of meat. The flesh has about the same food value as beef, having the same percentage of fat. Mutton fat has a higher melting point than beef fat, and cold mutton is apt to leave a tallowy taste in the mouth; therefore, mutton is best when served hot. Lamb is palatable hot or cold. Because of their distinctive flavor, mutton and lamb cannot be readily combined with other materials in utilizing left-over foods. The cuts do not lend themselves to such a variety of uses as beef. Therefore, lamb and mutton are not used in the mess as often as beef, pork, and poultry. Lamb and mutton make excellent dishes when well prepared and their use offers a change from too much beef.

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(2) Lamb and mutton legs are best suited for roasts, though they can be made into steaks and served with chops from the loin and short rack. The loin and the short rack are best suited for chops, though the short rack is used also for crown roasts. The flank, breast, and chuck are used almost entirely for stewing. The breast is sometimes stuffed and baked.

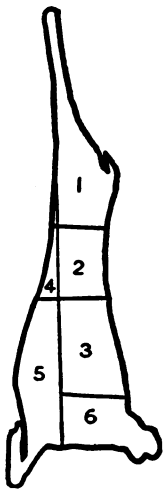

FIGURE 11.—Lamb carcass, showing the ordinary commercial cuts.

1. Leg.
2. Loin.
3. Short rack or hotel rack.
4. Flank.
5. Breast.
6. Chuck.

1, 2, and 4. Saddle.
1, 2, and 3. Long saddle.
2 and 3. Back.
3, 5, and 6. Rack.
4, 5, and 6. Stew.

20. Veal.—*a. Cutting.*—The manner of cutting veal and the names of the cuts are the same as for lamb and mutton. The bones of veal are red and soft, and are very easily cut. Veal is dressed with the skin on; that is, the skin is not removed on the killing floor. This is done to keep the flesh from drying out and becoming dark. Veal is sometimes delivered with the skin on. For Army use the skin should be removed before delivery. The flesh of veal is very tender and easily bruised. There is no way of telling whether the meat is bruised or not until the skin has been removed. Veal may be delivered whole or in sides, or as saddles and racks. (See fig. 12.)

b. Uses.—Veal contains very little fat. The meat is never marbled as beef and contains a high percentage of water. For these reasons it has less food value than beef, mutton, or pork. Because it is young it is always tender. The only advantages to recommend it as an article of diet in the Army mess are its tenderness and the fact that it gives variety to the menu. Veal usually costs more than beef, pork, or mutton.

21. Frozen meats and fish.—*a.* In time of peace beef, veal, lamb, mutton, pork, poultry, and fish may be delivered to Army messes in either a chilled or frozen condition. "Chilled" means that the meat has been held in a chillroom until it reaches a temperature of 34° to 36° F. "Frozen" means that meat has been held in a freezing room, often called cold storage, at a temperature usually

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below zero until solidly frozen to the center. In the continental United States meats, poultry, and fish normally are received by messes in a chilled condition. In the Tropics they sometimes are frozen when received. In time of war they may be received in frozen form both in the Tropics and elsewhere. Army cooks should understand the best methods of handling frozen meats because most frozen meats require different treatment before cooking from that required by chilled meats; that is, most frozen meats and poultry must be thawed before cooking for best results. The exception is thin pieces, such as frozen fish fillets, which may be cooked without thawing.

b. Frozen meats and fish should never be thawed in water, as this soaks out some of the meat juices, which reduces palatability and food value.

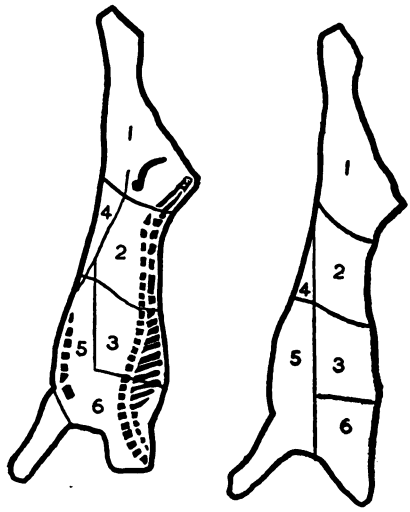

FIGURE 12.—Veal carcass (both sides), showing commercial cuts.

1. Leg.
2. Loin.
3. Short rack or hotel rack.
4. Flank.
5. Breast.
6. Chuck.

1, 2, and 4. Saddle.
3, 5, and 6. Rack.
1, 2, and 3. Long saddle.
4, 5, and 6. Stew.
2 and 3. Back.

c. While it is possible to thaw in ordinary room temperature, this is bad practice and should be resorted to only when there is not time to thaw in a refrigerator, because by the time the meat, poultry, or fish is thawed to the center the outside may begin to spoil. This spoilage is evidenced first by a slimy surface, and there may be a slight tainted odor; these evidences of spoilage increase as time goes on, and eventually the spoilage reaches such a stage that the surface must be trimmed away. The best method of preventing surface spoilage while thawing is to thaw at a temperature slightly above freezing (up to 40° F.). This requires longer but is safe. Regardless of the temperature of thawing, there should be a good circulation of air around the frozen product being thawed. This is because moisture appears on the surface while thawing, and moisture favors spoilage. If the air around the thawing meat is kept moving it carries away the moisture and the meat remains dry and in better condition.

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d. If there is not sufficient room in the refrigerator to permit hanging a quarter of frozen beef or a carcass of veal, it must be divided. This is not particularly difficult. It can be done with a meat saw. It is less difficult if thawing is allowed until cutting can be done with a knife down to the bone, but this method is not recommended in a warm room.

e. When using frozen meats, the time required for thawing must be considered in planning cooking operations. For example, if roast beef is to be served on Sunday, the frozen beef should be delivered Thursday or early Friday morning. Following are approximate times required for thawing in an Army mess refrigerator:

	Hours
Frozen beef, quarters, chucks, or rounds	36–48
Frozen beef, loins, ribs	36–48
Frozen veal, mutton, or lamb carcasses	24–36
Frozen veal, mutton or lamb cuts	18–30
Frozen pork, cuts	18–30
Frozen poultry or whole fish	12–24

f. Thin cuts of frozen meat, that is, cuts not more than 1 inch thick, may be satisfactorily pan fried by putting the frozen cuts directly into the hot pan without first thawing them. In pieces of this size the frost is quickly driven out, and the interior becomes cooked before the outside is overcooked. However, if the thin cuts are to be fried in deep fat they must first be thawed. If this is not done, the cold in these cuts will cool the fat below the proper frying temperature. About the only thin frozen cuts used in Army messes are frozen fish fillets, and when cooked without being first thawed they are more palatable.

g. When frozen meats are supplied to troops in the field as part of the field ration, usually there will be no refrigerator to thaw them in. They must be thawed in the open, the rapidity of thawing depending on weather conditions. In hot weather the surface of the meat will begin to spoil before the meat is thawed at the center. This spoilage may be retarded by hanging wet cloths or sacks around the thawing meat. The wind blowing on these wet sacks will keep the meat cooler than the surrounding atmosphere. Sometimes frozen meat will be received in the field only a short time before it must be cooked for the next meal. In such a case a stew may be made, using the chuck, shanks, or round. The meat saw and cleaver must be used to cut off these cuts. Cooked meats will keep in hot weather longer than chilled fresh meat, and when necessary to save meat to prevent loss through spoilage the cook should not hesitate to cook more meat than is needed for immediate service.

22. Sausage.—*a.* Commercial sausage is made from finely chopped or ground meat (or meat products) to which cereal (as flour or corn meal) may or may not have been added, and flavored with spices and condiments. It usually is stuffed into a casing. Federal specifications do not permit the Army to purchase sausage to which cereal has been added. The presence of any cereal must be declared on the label, and when over 3 percent of cereal is present the product must be labeled "Sausage and Cereal." Sausage containing cereal should not be accepted by Army messes.

b. Fresh pork sausage is made from fresh pork trimmings and should never be eaten raw. It should be cooked until well done.

c. Cooked and smoked sausages, such as bologna, frankfurters, etc., are made from combinations of beef and pork trimmings and meat products.

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d. Dried sausage includes all summer sausages which are made from pork and beef trimmings and for the most part are preserved by drying. Some varieties of summer sausage are smoked.

e. Cheap sausages contain large proportions of meat products (tripe, lungs, ox lips, etc.). The better grades contain little or no such products. Sausage may be cheapened by adding cereal. (See *a* above.)

f. If serving cold sausage, several kinds on the same platter are always desirable, for example, bologna, liver sausage, and varieties of summer sausage.

23. Smoked meats.—*a.* The usual smoked meats found on the market are hams, bacon (bellies), calas, bacon squares, bacon briskets, beef hams, etc. In this country the term "bacon" is applied to smoked bellies, though squares and briskets are also known as bacon squares and briskets. Calas (picnic hams) are pork shoulders with the butt removed and rounded to present the appearance of a small ham. They contain a much higher percentage of bone than hams and are, therefore, wasteful. However, they are much lower in price than hams. Bacon squares are made from pork jowls and contain very little lean meat. Bacon briskets are cut from the shoulder-end of bacon bellies. They are usually leaner than bacon bellies. Squares and briskets are excellent for seasoning and can also be used for frying. Smoked boneless butts, which are cut from the upper part of the shoulder in making calas, are economical substitutes for hams as they are free from skin and bone and there is no waste from their use. Beef hams are usually marketed in the form of sliced dried beef, but they may also be purchased as dried beef hams and sliced as needed.

b. The quality of smoked meats depends upon the quality of the meat used, the method of curing, and the amount of smoking. Most packers make 2 or 3 grades of hams and bacon, 2 grades of calas and beef hams, and only 1 grade of squares, butts, and briskets. Fancy breakfast bacon and fancy hams are cut from the best quality of pork; have smooth, thin skin, and firm, white fat; are fine grained, free from seeds; and have bright colored flesh. The lower grades are usually defective in one or more of the characteristics.

24. Pork cuts.—*a.* Pork is not ordinarily in sides or carcasses as is customary with beef. Practically all hog carcasses are made into commercial cuts in the packing plant. About 20 percent of these cuts reach the market fresh; the rest are cured, and many of the cured cuts are also smoked. The usual fresh pork cuts are loins, spareribs, Boston style butts, neck bones, and tails. Shoulders, calas, hams, and bellies are usually cured and smoked. Occasionally shoulders and hams are sold fresh. Pork, as delivered to the Army, is in the form of fresh, cured, or smoked cuts.

b. The preparation of pork for the mess does not require as much work as beef because pork is in cuts of a size and form that are easily handled. Most hogs are marketed at a comparatively young age, so the flesh is usually tender and the bones soft. Pork from old hogs, however, may be very tough and the bones very hard. In cutting well-chilled pork, it is well to have a pail of hot water handy into which to dip the knife. This keeps the fat from sticking to the blade and makes cutting easier. However, cutting tools should not be left standing in boiling water as this will take the temper out of the blades.

c. Pork usually contains a high percentage of fat, and for that reason it has a high fuel value in the body. Because of this it should be fed less in the summer time than during the winter. Pork is not quite so easily digested

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as beef. Pork muscle (lean meat) may contain trichinae, small parasites which curl up like pretzels in the muscle fibers and may remain alive there for years. These parasites cannot be seen in the meat without a microscope. There is very grave danger in eating pork which is the least bit raw because the person eating it may develop trichinosis which often causes an agonizing death. However, the trichina parasite is easily killed. Thorough cooking destroys it. A temperature of 137° F. in the center of the meat is enough to make pork safe for eating. Lean pork, or products containing lean pork, should never be served raw or rare. To most people pork is very tasty and palatable. It may be served in many ways—boiled, roasted, fried, baked, etc.

25. **Hearts, livers, and kidneys.**—*a.* These vital organs are a good source of vitamins A and B. They are usually quite economical and can be made into a wide variety of tasty dishes. Because of their high moisture content and their lack of fat, these organs do not keep well and should be kept in the refrigerator until time to use them.

b. The flavor of liver is much improved by frying it with bacon. Beef livers should be full, short, thick, and tender, of a dark mahogany color, have the gall bladder removed, and be free from bile stains.

c. The heart is a muscular organ; therefore, the meat is fibrous. Beef hearts contain a small bone or cartilage near the top center. This should be removed. Beef hearts should be given a long slow cooking to make them tender.

d. Kidneys should be of a dark red color, firm texture, and free from strong odors. Pork, beef, and lamb kidneys are equally satisfactory for mess use. If kidneys have a strong odor, this can be removed by slicing and soaking in salt water for several hours before cooking. While the kidney taken from the beef carcass is not sufficient in quantity by itself for a meal for the mess, it can be used to good advantage in soups and gravies.

26. **Fish.**—*a.* Fish may be served broiled, fried, sautéed, baked, or in salad.

b. Fish are very perishable and for this reason great care should be taken to avoid serving any which are not in good condition. All fish should be carefully inspected when received in the mess and again before being cooked or served, if kept very long. Fish may be classed as fresh, stale, or putrid, as described below. Only strictly fresh fish should be accepted or served by the mess. Fresh fish, if not frozen, should be delivered to the mess packed in cracked ice. For inspection and handling of frozen fish, see paragraph 21.

(1) *Fresh fish* have a bright appearance; the scales are firmly adherent and glittering; the natural slime, if present, is that common to the species; the eyes are outstanding and full; gills and mouth closed; blood in abdomen bright with no off odor; abdominal walls firm and elastic with no discoloration; flesh firm, elastic and tight on the bones; when placed horizontally across the hand the fish does not bend; when placed in water it sinks.

(2) *Stale fish* have a duller appearance than fresh; scales are more or less easily removable and slightly slimy or smeary or may be abnormally dry; eyes red bordered; surface of eyeball cloudy; gills pale yellow, dirty or grayish red and covered with slime of disagreeable odor; blood in abdomen dull in color and may have slight off odor; abdominal walls becoming soft and flabby; body bony and bends easily especially at the tail end; finger impressions easily made and remain; meat somewhat soft and more easily discolored; when placed in water a stale fish floats.

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(3) *Putrid fish.*—All the brightness gone; dull lifeless color; scales very loose and covered with a smeary slimelike mass of very disagreeable odor; eyes breaking down or gone; all bright color gone from the gills which have an extremely offensive odor; body withered and flabby; abdominal walls soft and pulpy with apple-jelly-like appearance and discolored; meat soft; abdomen bloated; body blood dirty brown in color and with offensive odor. A putrid fish floats when placed in water.

c. To clean fish.—(1) *Scaling.*—The scales are removed with a knife held at such an angle that the blade will work under the scales as the knife is pushed in the direction of the head from the tail, with short, quick motions.

(2) *Removing the entrails.*—With a pointed knife cut the entire length of the belly from the vent to the head, taking care not to cut the entrails. Cut the head from the body, starting cutting from the belly side. The entrails can then be removed by hand. In some small fish it is possible to remove the entrails with the head by opening the belly, then loosening the head by cutting from the back, and pulling in the direction of the vent. After the entrails have been removed the fish should be wiped thoroughly, inside and out, with a cloth wrung out of cold water. There may be some clotted blood near the backbone that cannot be removed in any other way than by wiping.

(3) *Skinning.*—Haddock, eels, bullheads, etc., do not have scales and are usually skinned. The fins along the back should first be removed with a sharp knife or scissors. Make a cut, skin deep, along the entire back; grasp the skin on the back, just back of the head, between the thumb and a knife blade and pull downward and backward. The skin will usually come off in a sheet. If the flesh is tender, care should be taken not to tear it by pulling too quickly. In skinning bullheads it may be necessary to fasten the fish by the head by hanging it on a hook or by driving a nail through the head because the skin is tight to the flesh and it takes hard pulling to remove it. It may be necessary to use a pair of pliers for this purpose.

(4) *Boning.*—Haddock, cod, halibut, whitefish, etc., are quite easily boned. After the fish are scaled and cleaned (or skinned), run a sharp knife along each side of the backbone from the tail to the head and pull back the flesh from the backbone. Any small bones that cannot be removed readily with the backbone may be pulled out by the fingers. Another method of boning is to dress the fish and remove the head, then grasp the backbone at the head end with one hand and pull the flesh away from the backbone with the other. Pull out all loose bones that have not been removed with the backbone, and/or scrape over the flat surface of the inside of the fish with a knife.

27. Poultry.—*a. General.*—Poultry includes those birds which are usually raised on farms for their flesh and eggs. The principal classes of poultry are chickens, turkeys, ducks, and geese. Turkey is included in the ration for Thanksgiving Day and for Christmas, but chicken is the class of poultry most used in the mess. Ducks and geese are seldom used in Army messes. Ducks yield a smaller amount of food than any other class of poultry and are usually high in price. Geese are usually less expensive and yield a good proportion of edible meat, but are not so popular because of their supposed greasiness. When cooked properly, roast goose is very tasty and a desirable change from the other classes of poultry. (See recipe 87.) Ducks and geese have no white meat such as is found on the breasts of turkeys and chickens. Chicken is the only class of poultry which is commonly served to the mess fried or fricasseed.

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b. Chickens, kinds and uses.—There are four principal classes of chickens: Broilers, fryers, roasters, and fowl. Broilers and fryers are young birds with tender flesh and are best suited for broiling or frying. They are too small to roast satisfactorily and have too little fat on them to be used for stew or fricassee. Fresh broilers can be found on the market during June and July, and fresh fryers during July, August, and September of each year. At all other seasons fresh broilers and fryers are both scarce and expensive, but they may be procured from cold storage during this time if desired. Fowl and roasters best meet the needs of the Army mess. Fowl, which are fat hens over 1 year of age, are usually somewhat tough, and, therefore, used for stew and fricassee. The best grades of hens are sold as fowl and usually are kept in cold storage; stewing hens are the poorer grade. They can be bought fresh at any time of the year. Roasting chickens are quick-grown young cockerels. Their meat is tender, and they are excellent for roasting. Fresh roasters are found on the market from September to January; at other times frozen roasters may be procured. Cocks (old roosters) and stags (male birds with marked masculine characteristics) should never be used by Army messes. Age is determined by the size and development of the birds, the condition of the shanks, claws, and spurs, and the condition of the cartilage of the breastbone. Young birds are lankier and rangier than mature (old) birds, and the head, wattles, and comb are undeveloped. The shanks (lower leg) of young birds are smooth and bright, while with increasing age the shanks become roughened, scaly, and dull colored. On broilers the spur is scarcely noticeable; on fryers it shows as a small rounded knob; on roasters the spur is more prominent, but not hard; on stags the spur becomes longer and harder. The claws of young birds are short, slender, and pointed, while on the old birds they become long, dull, and stubby. The cartilage at the rear (lower) edge of the breastbone is soft and pliable in young birds while as the bird grows older this cartilage gradually turns to bone and becomes firm and rigid. Cockerels and cocks have a greater development and usually deeper color of wattles and comb and larger heads than pullets and hens. Hens have a deeper, broader body, especially in the abdomen, than cocks. The shanks and thighs of hens are much slenderer than those of the male birds, and the spurs of the hen are small and undeveloped. The neck, back, and tail feathers of the cock are usually much heavier than those of the hen. A cook should be able to recognize readily the different classes of birds in order that he may determine which is the best manner of cooking and serving them.

c. Turkeys, kinds and uses.—Army specifications prescribe only young turkeys for use in the mess. Here again age is reflected in the size of the bird, condition of the breastbone, size of the dewbill and beard, size of the spurs, and color of the legs. Young toms are more rangy and leggy than hens. Hens have short, plump bodies; small, short legs and wings; small heads with small dewbills (the fleshy growth just above the beak), and either a small beard or none at all. Old toms have a long, coarse beard, prominent dewbill, and large heavy spurs. The beard begins to grow on the breast of the male turkey at the age of 2½ months, and at 1 year old is from 3 to 5 inches long, becoming longer each year. When about a year old, the turkey hen begins to grow a beard, but it is always short compared with that of the tom. The dewbill is always larger and more elastic in the male (tom) than the female bird. Young toms have only a short, blunt knob on the inside of the shank, while old toms develop a stout spur. The hen turkey has only a small rudimentary spur

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or button. Turkeys' feet are said to be black up to 1 year of age, assume a pinkish color up to 3 years, and then gradually turn a dull gray. The breastbone cartilage of the young turkey is always soft and pliable, gradually becoming hard and firm as age advances.

d. To draw and clean poultry.—The poultry received by the Army mess usually has been killed and bled, then dressed and chilled or frozen. Dressed means that the feathers have been removed, but dressed poultry practically never has been drawn (entrails removed); therefore, if the mess receives dressed poultry it is necessary to remove the entrails after receipt. If the entrails have been removed before being received by the mess, the poultry is called dressed and drawn. Before drawing a bird the skin should be cleaned. The fine hair found here and there on the skin can be easily removed by singeing. This is done by holding the bird for a moment over a gas flame, or any other clean flame, and turning it so that all portions of the skin come in contact with the flame. Pin feathers are removed by grasping them between the thumb and the blade of a paring knife and pulling them out. Next step (except in the case of turkeys) is to cut off the head with a cleaver or a heavy butcher knife and to remove the feet by cutting through the hock joint with a knife. All of the tough coarse skin on the hocks should be trimmed off. The legs of turkeys contain a number of coarse tendons that are objectionable if not removed. To do this, loosen the skin and the ligaments on each side of the hock joint, and then twist the foot until it is free except for the tendons. Then by hanging the bird up by the feet and pulling straight downward, these tendons will pull out of the leg muscles and remain attached to the feet (shank). The first step in drawing a bird is to remove the crop, gullet, and windpipe. Slit the skin covering the crop crosswise with a knife, and loosen the crop all around with the fingers. Then cut the gullet below the crop and close to the breastbone, and remove the crop and neck part of the gullet by pulling. By thus removing these parts first, the entrails remaining can be drawn out more easily. The windpipe may have to be cut near the lungs to remove it readily, and should be pulled out at this time.

Next cut from the rear of the breastbone to the vent (anus) and loosen the vent by cutting around it. Insert the hand into this opening, grasp the intestines as far forward as possible, and draw them out to the rear. All except the lungs should come out together. The giblets (heart, liver, and gizzard) should now be separated from the entrails and the remainder discarded. There is usually considerable fat attached to the intestines of geese which should be removed and used for cooking or rendering. The blood vessels should be cut away from the top of the heart. The gall bladder is attached to the liver and should be carefully removed to avoid puncturing. No bile should be allowed to come in contact with the meat, as this may impart a very bitter flavor which is hard to remove. The inlet (gullet) and outlet (intestine) of the gizzard should be cut as close to the gizzard as possible, and the gizzard opened by cutting through one side down as far as the sack which lines the gizzard. This sack may be entirely removed with the fingers if a little care is used and the sack itself is not cut. The gizzards of geese have two disks of cartilage on their inner surface, which generally should be removed by a knife. The lungs are easily removed. They are soft and pulpy and lie in the forward end of the cavity underneath the ribs and on either side of the backbone. They have no food value and should be removed. The kidneys lie on either side of the backbone toward the rear of the cavity. They

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are not easily removed entirely, and may be left in, as they have some food value, and are palatable and edible. The oil gland (bag) just above the tail should be removed with a knife, care being taken to remove all of the gland. It can be distinguished from the surrounding tissue by its darker color. The drawn and dressed carcass is then ready for washing. It should be rinsed under a faucet, allowing the cold water to run through it and over it, washing off any stains or foreign matter. The carcass should never be soaked in water. If the bird is to be roasted, it is now ready to be stuffed. After stuffing, the cuts made for removing the entrails are sewed up and the bird is ready for the oven. If the bird is to be used for any other purpose than for roasting, it must be cut up. The wings, legs, and thighs are unjointed with a knife, and the remainder of the carcass cut into as many pieces as desired with either a knife or cleaver.

28. Baking powder.—Baking powder is used to leaven cakes, pastry, and biscuits. It can be used to leaven bread, but it is seldom so used, as bread is usually leavened with yeast.

a. Types.—There are three main types on the market:

(1) *Quick-acting* contains phosphoric acid, or cream of tartar, or cream of tartar and tartaric acid.

(2) *Slow-acting* contains sodium aluminum sulphate (alum).

(3) *Double-acting* contains *both* sodium aluminum sulphate (alum) and phosphate (or calcium phosphate). The type is indicated by the label which always shows the ingredients.

b. Rules for using baking powder.—(1) Quick-acting baking powder acts while the batter is cold, so it must be placed in the oven quickly; otherwise part of the gas will be lost before baking.

(2) Double-acting baking powder acts slowly until placed in the oven. In other words, heat is required to make it act. Therefore, when using double-acting baking powder, the cake, etc., need not be placed in the oven immediately. For example, when using this type of powder, a hot cake batter may be made up, kept overnight in the refrigerator, and cooked the next morning with little or no loss of leavening power.

(3) The same rule as in (2) above applies when using a slow-acting powder, as it acts very slowly until heat is applied.

(4) When quick-acting baking powder is used, twice as much is required as when double-acting powder is used. In other words, quick-acting baking powder is only one-half as strong as the double-acting type.

(5) A good general rule is two level teaspoons of quick-acting, or one level teaspoon of double-acting, baking powder to each cup of sifted flour.

(6) When making hot cakes, if they do not appear light, additional baking powder may be stirred into the batter.

(7) Quick-acting baking powder requires a hot oven, about 425° F.—9 to 12 counts. A double-acting powder requires a medium oven, about 350° F.—12 to 16 counts at the start and a gradual increase in the temperature to about 425° F.—9 to 12 counts.

(8) Exact measurement to obtain proper quantities of baking powder for different recipes is important. Many failures in cake making are caused by use of too much baking powder. This tends to make the cake fall or have a coarse texture, or to give biscuits a yellow color and disagreeable taste. Quantities called for in recipes should be followed exactly, neither adding nor subtracting any amount.

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c. Storage.—If kept perfectly dry, baking powder will keep in good condition for several years. The can should be kept tightly closed and in a dry place.

29. Baking soda.—Many cooks do not understand how to use baking soda advantageously in cooking, and for this reason it is not extensively used. It can be used to advantage in certain cooking operations. When used with sour milk, the biscuits are considered by many to have a flavor superior to baking-powder biscuits; further, this provides a means of utilizing sour milk and saves the cost of baking powder. The sour milk neutralizes the odor and taste of the baking soda which may be objectionable in many products when baking soda is used alone. A little baking soda is added to cream soups (especially cream of tomato) to prevent curdling.

30. Beans, dry.—*a.* (1) There are a number of types of dry beans. For Army messes, the following types may be purchased:

Type A, white beans
Type B, kidney beans
Type C, lima beans
Type D, colored beans
Type E, black-eye beans

In time of peace any of these types can be secured, but in time of war, type A will usually be furnished.

(2) Each type has a number of different varieties with the exception of the black-eye which has only one. For example, if a quartermaster has type A (commonly known as "Navy" beans) on hand, he may have any one of the following varieties:

Official name	*Common name*
Small white	Small white or California small white
Pea	Pea or Michigan pea
Medium white	Medium white or medium
Large white	Large white
Great northern	Great northern

b. (1) Kidney beans might be carried by a quartermaster as either red kidney beans, dark red kidney beans, or western red kidney beans. Western red and red kidney beans are light red in color, while dark red kidney beans are dark red to mahogany. There is no difference in eating quality.

(2) Lima beans may be carried as either lima beans or baby lima beans; the first being large, the second small in size. There is little or no difference in eating quality.

(3) Colored beans may be one of the following: Pinto (a mottled buff or tan-colored bean), pink, or small red. There is no difference in eating quality. Army messes located on the Pacific coast will often receive pink or small red while those located east of the Rocky Mountains will often receive pinto.

(4) Black-eye beans usually are of only one kind—a white bean with a black eye. They are often called black-eyes or black-eyed peas.

c. (1) White beans are best for baking while colored beans, lima beans, or black-eye beans are usually simmered. White beans usually are baked and are very popular cooked in this manner although they sometimes are simmered. They are usually served as the main dish of the meal whereas colored beans are usually served as a vegetable and not as the main dish.

(2) Of the white beans, some cooks prefer the small sizes (small white or pea) while others prefer the large sizes (large white or great northern). There

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is little choice although the great northern appears to be the best cooking bean; that is, it cooks soft with a minimum of broken or tough skins. It is important to avoid cooking two sizes of beans together as this may result in the small beans becoming overcooked and mushy before the larger beans are thoroughly cooked. Old crop beans are dry and hard and require longer soaking and cooking than beans of the latest crop.

(3) Lima beans and baby lima beans have a distinctive flavor and provide variety in the mess. Usually they are simmered with a seasoning of ham scraps or salt pork but are palatable when baked, provided dryness is prevented by adding beef stock or milk.

(4) Black-eye beans, having a flavor of their own, are very popular with men from the Southern States where these beans are chiefly grown. They also are well liked by men from other States. Usually they are simmered with ham scraps. Sliced onion cooked with them or served raw with them adds to the palatability. Hot corn bread goes especially well with black-eye beans.

d. Dry beans are one of the most valuable foods for Army messes and deserve to be served rather frequently. When properly cooked and served, they are appetizing and popular. In addition to being baked or simmered and served hot, beans which have been baked or simmered can be used cold in appetizing salads. Left-over baked Navy beans are palatable when reheated.

e. There is little difference in nutritive value between the various types of dry beans. They all are high in protein, about equal to meat in this respect, and have been called the "poor man's meat" because while they have about as much protein as meat, they are much lower in cost. Dry beans do not provide any roughage. They are a good source of vitamin B but do not furnish any other vitamin.

f. Dry beans sometimes become insect infested. This condition occurs more frequently in the Tropics and Southern States. The kidney and colored types appear to be more liable to attack by insects than the other types. Usually the first indication of insect infestation is the small holes made by the larvae (worms) which have been inside the beans and have eaten their way out. If a few beans are placed in water, those containing larvae, if any, will float. If the beans which float are cut in two with a knife, the larvae will be disclosed; however, the mere fact that some of the beans float does not prove that larvae are present.

31. Breakfast foods, cereal.—*a.* There are four main types on the market based upon method of manufacture:

(1) *Uncooked.*—Corn meal, farina, bran.

(2) *Partly cooked.*—Oatmeal, rolled oats.

(3) *Wholly cooked.*—Corn and wheat flakes, puffed grains, etc.

(4) *Malted.*—Barley malted dry cereals.

b. Rolled oats and corn meal are about the lowest in cost and, in the order named, the most satisfactory breakfast foods from the standpoint of supplying the greatest food value for the least amount of money. Much of the cost of many cereal breakfast foods sold in package form is represented by the package. Therefore, bulk breakfast cereals are most economical although there are advantages in the use of the packaged cereals represented mainly by ease in serving and better protection from insect infestation while in storage.

c. Bran furnishes vitamins, minerals, and roughage. It has a laxative effect but should not be habitually used for this purpose. While it may be served

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occasionally to provide variety in breakfast cereals, too frequent servings should be avoided.

32. Butter.—*a.* Butter has a fine characteristic flavor which cannot be duplicated by any other product, and when butter is used as an ingredient in baking and cooking this fine flavor is imparted to the finished product. However, butter is relatively high in cost, and it is sometimes necessary to use substitutes such as vegetable shortening and lard substitute. While these substitutes are fairly satisfactory as shortening for many kinds of cakes, it cannot be expected that they will impart as fine a flavor as butter. There is no satisfactory substitute for butter for such dishes as buttered asparagus, beets, cauliflower, or peas.

b. Butter should be kept in the refrigerator when not in use as it loses its flavor when exposed to room temperatures and easily absorbs odors.

33. Canned foods.—*a. General.*—Canned foods include those foods which have been packed in cans, jars, or bottles to keep them in sound condition. While, in general, fresh foods are preferred, there are long periods throughout the year, mainly in winter and spring, when the fresh items cannot be bought at reasonable cost, and canned foods are splendid substitutes. They make possible a wide variety of foods in the mess and are ready for use, requiring only heating or chilling.

(1) *Canned meats.*—Canned meats include corned beef, roast beef, corned beef hash, sausage, ham, bacon, potted meats, and veal loaf. All canned meats, except bacon, have been thoroughly cooked at the time of canning and may be eaten without cooking in the mess. Most of them are more palatable if heated; however, canned corned beef, if served alone, and potted meat, etc., are more palatable cold, and should be chilled before serving. Canned meats are included in the field ration and are issued when it is impracticable to furnish fresh meat. Canned meats are an excellent source of protein and have very good keeping qualities. As they are more expensive than fresh meat, their use should be primarily for emergency conditions when cooked fresh meats cannot be obtained.

(2) *Canned sea food.*—(*a*) While many kinds of fish are canned, the most satisfactory for Army mess use is canned salmon as it can be used in many ways, served cold alone or in salmon salad or other salads, fried in hash, creamed, baked, etc. It has recently been discovered that canned salmon is a very valuable health-protective food, especially the oil, because it furnishes vitamins A and D; therefore, this oil should be carefully saved and added to the salmon which is served. Canned salmon also is a good source of protein and fat.

(*b*) Canned sardines and other canned fish, as tuna fish, are occasionally used in the Army mess. The sardines may be used for sandwiches and are best for this purpose if mashed into a paste. Canned tuna fish is used cold in salad or creamed.

(*c*) Canned oysters and clams are occasionally used but are rather expensive. Canned crab and lobster are very expensive. As an occasional special treat, canned crab may be mixed with chopped lettuce, canned peas, and salad dressing, and served thoroughly chilled. Most of this dish consists of the lettuce and peas; fifteen ½-pound cans of crab are sufficient for 100 men.

(3) *Canned evaporated milk.*—See paragraph 57.

(4) *Canned fruits and vegetables.*—(*a*) These articles are a very important part of the Army ration. When fruits are canned, a sugar sirup is added to

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make the fruit sweeter and help preserve it. When vegetables are canned, a brine which is made of salt and water or sometimes sugar, salt, and water is added to the can. After the can is sealed, much food value goes from the fruit or vegetable into the sirup or brine. Too often this liquor (sirup or brine) is thrown away. It has high food value and should always be saved and used. Following are some of the uses for sirups from canned fruits and liquor from canned vegetables:

1. Sirups from fruits.

Beverages and coloring.
Flavoring and coloring gelatin and other desserts.
Flavoring and coloring some salads.
As a substitute for milk on cereals.
Added to stewed dried fruits.
Flavoring and coloring sweet sauces.

2. Liquor from vegetables.

Added to soups for flavor.
Flavoring and coloring salads, especially when made with gelatin.
Added to gravies and sauces for flavor.

(*b*) Canned fruits and vegetables are equal, or nearly so, to fresh fruits and vegetables in nutritive (health-protecting) value. Troops can be kept in good health, even when no fresh fruits and vegetables are available, if they are furnished canned fruits and vegetables. Canned tomatoes are especially valuable for health protection as they are very rich in vitamins.

(*c*) Canned fruits and vegetables as well as other kinds of canned food have been thoroughly cooked in the canning process at the factory and, therefore, do not require cooking in the mess. If desired to serve canned foods hot, it is necessary to heat them for only a few minutes to make them ready for serving. Canned foods, especially canned fruits and vegetables, should never be boiled or heated longer than necessary to get them hot for serving as boiling or prolonged heating tends to destroy their health-protecting vitamins.

(*d*) Canned fruits are served as a table dessert, alone or in combination with other fruits, in fruit salad, and in puddings, pies, and other cooked and baked dishes. A single canned fruit is sometimes served as a dessert; for example, canned peaches or canned pineapple. A much more appetizing fruit dessert can be made by using several different kinds of canned fruit and making a fruit salad or fruit cup. This requires no more fruit and costs little, if any, more. The large pieces should be diced or chopped. A topping of a little ice cream, shredded coconut, or whipped cream adds greatly to the appearance and palatability of fruit cup.

(*e*) Palatability of canned fruit is greatly increased if chilled before serving.

(*f*) Two types of canned fruits are packed:

1. Those which are packed in a sugar sirup, and

2. Those which have had no sugar added (water-packed—pie fruit). They are usually used for pie and require the addition of sugar.

(5) *Canned specialties.*—This covers such foods as combinations of fruits or vegetables for salads, canned spaghetti, prepared chocolate milks, and similar items. Their cost is high, and generally the same foods may be prepared in the mess at less expense. However, canned tomato and pineapple juice have vitamin value and are inviting drinks for breakfast from time to time in lieu of fruit. Cost will govern the frequency of serving.

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b. Inspection of canned foods.—The most important feature in the inspection of canned foods when received in the mess is the detection of any which are spoiled. Spoiled cans are usually swelled; that is, the ends are bulged out. Some times spoilage is indicated by the fact that the cans are leakers, and some of the juice or brine has escaped and soiled the exterior. Swells, leakers, and badly rusted cans should not be accepted. The contents of cans which are swells or leakers should never be used as spoiled canned food may be very poisonous. Slight rusting or denting or soiled labels do not affect the quality of the food and are no cause for rejection.

c. Storage of canned foods.—(1) *General.*—Canned foods should not be stored in high temperatures as this hastens spoilage. A dry storage place with an even temperature not over 60° F. is best. If canned foods freeze, the seams may burst and the cans become leakers. This permits air to enter and the contents to spoil. Canned foods which have become frozen should be carefully examined, and any which show signs of being leakers should be used at once before the contents have had time to spoil. Frozen canned foods should be thawed slowly and never in a hot room unless the food is to be used at once.

(2) *Keeping qualities of various canned foods.*—(*a*) Canned fruits and vegetables of the acid type (cherries, berries, pineapple, plums, sauerkraut) spoil rather rapidly in the warm temperatures often prevailing in kitchens or mess storerooms and should not be kept on hand in the mess more than 3 months. One exception is tomatoes, which keep well for at least 6 months. Spoilage in this type of canned food is always indicated by swelled cans.

(*b*) Canned fruits and vegetables of the nonacid type (apricots, peaches, pears, beans, corn, peas, pumpkin, etc.) keep comparatively well and may be stored in the mess for 6 months to 1 year with safety. Spoilage of the nonacid fruits is indicated by swelled cans; starchy canned vegetables such as baked beans, corn, peas, pumpkin, and squash often spoil without swelling and, when spoiled, are called flat sours. On opening a flat sour a sour odor is noticeable, and the contents are usually sloppy or mushy and have a sour taste. Tasting of any canned food to detect spoilage should be done with caution, food tasted should never be swallowed, and the mouth should be immediately rinsed out.

(*c*) Canned meats are good keepers and may be kept on hand in the mess for at least 1 year with safety.

(*d*) Canned sea food does not keep as well as canned meats, and frequent inspection for the detection of spoilage is necessary. Canned salmon may be kept on hand in the mess for at least 1 year with safety.

(*e*) Canned milk is not a very good keeper and should not be kept on hand in the mess longer than 6 months.

(*f*) All canned foods in storage in the mess should be inspected frequently to detect signs of spoilage and to insure that they are used within the safe storage limits as explained above. Dented and battered cans should be carefully inspected and, if not leaking, used first as the can may have been weakened and may become a leaker within a few days.

34. Cereals, breakfast.—See paragraph 31.

35. Cheese.—*a. Varieties.*—There are many varieties of cheese. The principal varieties made in the United States are—

(1) Cheddar (cheddars, flats, daisies, young Americas, longhorns, prints, and squares).

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(2) Swiss (or Ementhaler).
(3) Brick.
(4) Limburger.
(5) Cottage.
(6) Processed (or pasteurized). (Sold under brand names.)

b. Food value.—With the exception of cottage cheese, all the varieties mentioned above contain about one-third fat and one-third protein. They, therefore, have high food value as the protein is rich in body-building substances and the fat furnishes large amounts of heat and energy. Cottage cheese is made from skim milk and contains no fat. Cheese is rich in vitamins and minerals.

c. Uses.—Cheese is used as a substitute for and a supplement to meat, and for flavoring a great number of dishes. Due to its great food value, it should be served often. By using the various kinds of cheese and by cooking with other foods, much variety can be given the diet. Cheese, preferably two or more varieties, should be served when cold meats are served.

36. Chocolate.—*a.* Chocolate is sold as—

(1) Plain (also called bitter or cooking) chocolate.
(2) Sweet chocolate.
(3) Sweet milk chocolate.

b. Chocolate in storage sometimes develops a white bloom or discoloration on the surface. This is merely cacao fat and does not harm or lessen the eating qualities of the chocolate in any way.

c. Chocolate is used in several ways. It may be used in lieu of cocoa to make a beverage, or in icings, chocolate cake, puddings, etc. When melting it, use a double boiler; otherwise it may scorch.

37. Cocoa.—*a.* There are two kinds of cocoa—breakfast cocoa and cocoa. Breakfast cocoa is better; it contains not less than 22 percent of cocoa fat and makes a richer and more pleasing beverage. There are on the market mixtures of cocoa and sugar, or cocoa and starch, etc., sometimes flavored with vanilla. These are not cocoa—they are merely cocoa preparations. On account of the added sugar or starch, they are usually very light in color and do not make a beverage of the same strength as that made from pure cocoa.

b. Low-grade cocoa is gritty and of poor flavor. Light or dark color in cocoa is not necessarily an indication of quality as dark color may be due to heavy roasting of the cocoa in manufacture. However, a very light color may indicate an imitation or adulterated cocoa.

c. The frequent serving of cocoa is desirable. It affords a change from coffee at meals. Many men who do not like milk will drink cocoa and in that way obtain the benefits others get from drinking milk. If served at breakfast, coffee should also be served as many do not desire cocoa as a breakfast drink.

38. Coffee.—*a.* Coffee is used most as a beverage, but it may also be used to flavor ice cream, puddings, sauces, etc. It is naturally served hot but may be served iced in hot weather, although when so used it lacks some of the stimulating effect of hot coffee.

b. The coffee furnished to Army messes is of good quality and will make an excellent beverage, provided it has not lost its strength and the beverage is properly made. Coffee loses its strength rapidly after roasting, and the loss of strength is hastened if the roasted coffee is ground, due to the greater surface exposed to the air. Loss of strength is retarded if roasted and ground

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coffee is kept in tightly closed containers. When practicable, coffee should be ground just before using in order to get the maximum strength from it. When this is done, a smaller quantity will make a beverage of suitable strength; on the other hand, if the mess purchases coffee which has been roasted and ground for some time, or purchases more than can be used within a week, it is necessary to use larger quantities in order to make a satisfactory beverage. In making coffee by any one of the three methods given in this manual (see par. 121), the detailed instructions for the method used must be carefully followed to produce a good beverage. Nothing adds more to the satisfaction of a meal than a cup of good coffee; and nothing detracts more from a meal than coffee which is weak or bitter, or of poor flavor.

39. Condiments other than spices.—*a.* These include mayonnaise, salad dressings, sauces, etc. Most of these can be made in the mess kitchen with ordinary equipment, and this should usually be done as a considerable saving can be made. Instructions for making them are given in the recipes in this manual. Mayonnaise can be made with ordinary equipment, but a machine mixer is more convenient.

b. While these condiments have some food value, their chief value is in making other foods more appetizing and attractive. They have some calorific (energy) value and some vitamin value. This value depends on the ingredients used. While an eggless salad dressing of the mayonnaise type does not have as high food value as mayonnaise, it is a very satisfactory substitute and costs only about one-half as much as mayonnaise.

40. Corn meal.—*a.* Corn meal is ground white or yellow corn with the hull removed and the fine corn flour sifted out.

b. About the only difference between hominy grits and corn meal is that the corn meal is of finer size. Both are made by sifting the same cracked corn.

c. Corn meal has a high calorific value. It has many uses in the menu, but especially as fried mush or in corn bread.

d. Corn meal in sacks is especially subject to insect infestation and should not be kept on hand for more than 3 months.

41. Cornstarch.—*a.* Cornstarch is a pure carbohydrate and has a high energy value. It provides no vitamins, minerals or roughage. It is inexpensive and provides energy at low cost but must be properly prepared to be palatable. For example, a plain cornstarch pudding is not very palatable. Many soldiers will not eat it. Such a dish should be made by adding fruits, coconut, etc., and served with a sauce or whipped cream.

b. Cornstarch is used for puddings or as a thickener for gravies, pies, and sweet sauces. Cornstarch is not as desirable as flour for thickening gravies but may be used for this purpose if flour is not on hand. It may also be used to tone down a hard flour, or as a flour substitute (see par. 44).

42. Eggs.—*a.* (1) The market value of eggs is determined by age, size, weight, shape, cleanliness, and condition. In some localities it is also influenced by color of shell, but this is merely a matter of personal preference as the color of shell makes no difference in the food value.

(2) Grades of eggs are based on weight and condition (clean, sound shell, sweet, free from mold, foreign flavors and odor). Army specifications permit a certain percentage of checked and dirty eggs in each case but do not permit any eggs which are inedible on account of internal condition.

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b. Eggs should never be washed unless they are to be used at once as the shell of an egg is porous and washing opens the pores and allows bacteria to enter the egg, and spoilage follows rapidly.

c. Small white spots at either end of the yolk have no meaning as they are only parts of the fiber which holds the yolk in place before the shell is broken. There is a small (germinal) spot found in the yolk of every egg, whether fertile or not. This spot is of no importance while small, but if the egg is fertile and germination begins, the germinal spot becomes larger and soon makes the egg unfit for eating. This will happen within 10 days after laying during the warm season unless the egg is kept in cool storage.

d. (1) Eggs are used in the mess in many ways, as boiled, poached, fried, or scrambled, or in cooked or baked dishes. They are used in custards, meat loaf, croquettes, French toast, etc. Aside from food value and flavor, eggs serve the following additional purposes:

(*a*) *Binding.*—To avoid crumbling of muffins, cookies, croquettes.

(*b*) *Clarifying.*—In soups. The loose floating particles of other ingredients are caught in the egg particles and thus are held together. The white of egg is used for this purpose.

(*c*) *Coating.*—To give an attractive cover to chops, cutlets, and other meats.

(*d*) *Coloring.*—Give desirable yellow (yolk) or white (albumin) color to product.

(*e*) *Decorating.*—Sliced hard-boiled eggs. To serve with cold meats, salads, fish, etc. They present an attractive appearance if cut across the yolk.

(*f*) *Leavening.*—To give lightness to hot cakes and pastries.

(*g*) *Separation of oils.*—In mayonnaise the eggs surround particles of oil, thus keeping them from coalescing (joining). This makes the mixture a smooth one.

(*h*) *Texture improving.*—Avoids lumping of frozen mixtures.

(*i*) *Thickening* for sauces, pie fillings, custards.

(2) If the egg whites are to be whipped, none of the yolk should be allowed to get into the dish as it keeps the whites from becoming fluffy. If eggs are not reasonably sound, the whites cannot be beaten into a light mass.

e. If many eggs are to be broken into a dish, they should be first broken and dropped into a saucer, one by one, so that any bad eggs may be thrown out without spoiling a whole batch.

43. Extracts, flavoring.—There are many flavoring extracts on the market, but those most used in the mess are vanilla and lemon. They are used in puddings, sauces, ices, ice cream, cakes, and pastries, and occasionally added to other dishes as called for in various recipes. It is a common fault to be too sparing in the use of flavoring extracts. The judicious use of them adds palatability to many dishes which otherwise would not be particularly attractive.

44. Flour.—*a.* This is one of the cheapest and one of the most useful items of the ration. While most breads, with the exception of hot breads such as biscuits, rolls, etc., are baked in the post bakery or in small posts are purchased under contract, there are many uses for flour in connection with the making of hundreds of inviting dishes as well as for pastries and similar uses.

(1) *Bread flour* (*hard wheat flour, issue flour*) is used most extensively for bread and other yeast-leavened baked products and is suitable for the making of gravies, hot cakes, etc. It is not a good pastry flour as it is too

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hard and tends to make a tough cake or pastry. If no soft wheat (pastry) flour (see (3) below) is on hand, and it is necessary to use bread flour for pastries, the latter can be toned down by mixing in 10 percent of cornstarch or other flour substitutes (see (7) below).

(2) *Family flour.*—Family flour is a mixture of hard and soft wheat flours. It is intended for general use; bread baking as well as cake baking. It is not as satisfactory for bread as hard wheat flour nor as satisfactory for cakes as soft wheat flour, but is a good all-purpose flour intended more for the home than for the mess.

(3) *Soft wheat flour (pastry flour).*—This type is intended mainly for cake and pastry making and is most suitable in batters where baking powder is used instead of yeast. It is soft to the touch and, when yeast is used, requires considerably less time for fermentation than hard wheat (bread) flour.

(4) *Graham flour (whole wheat or entire wheat flour).*—This is a flour containing most or all of the bran of the wheat kernel as well as the lighter colored starchy part of the grain which makes up the ordinary wheat flour. It is used for whole wheat bread, muffins, etc.

(5) *Rye flour.*—This is either light or dark in color, depending on the method of milling used. In a dark flour more of the bran particles are included, and while they contribute some small additional minerals to the diet, there is no particular advantage in the use of either color except for the purpose of producing a lighter or darker colored baked product.

(6) *Self-rising flour.*—This is composed of flour and baking powder or baking soda and phosphate in proper proportions to leaven, or raise, the mixture when baked. The cost of this product is usually too high for use in the mess and since its ingredients are available to every cook, its purchase is not warranted in the service.

(7) *Corn, barley, rice, and potato flours.*—The use of these flours in the Army mess is seldom necessary. They can be used, if necessary, as a flour substitute by mixing with wheat flour. Cornstarch also can be used for this purpose. The proportion should be 90 percent wheat flour and 10 percent substitute. If one of these substitutes is mixed with a bread flour, the effect is to weaken the flour; that is, to change it to a soft or pastry flour, but pastries made from such a mixture will be inferior to those made from a soft flour.

b. Flour has a high calorific (energy or fuel) value, but it contains little vitamin or roughage value. While bread is called the staff of life and is an important and necessary part of our diet, the body cannot be kept in a state of health by eating bread alone to the exclusion of a variety of other essential foods such as meats, fruits, and vegetables.

c. When flour becomes old it is also likely to become insect infested, and it may be necessary to remove insects by sifting. If there are many insects, the flour should be discarded. However, it should not be necessary to keep any considerable quantity of flour in the mess.

45. Fruits, dehydrated (very dry).—These should not be confused with dried fruits as the dehydrated product is drier, containing only about 6 percent water. While these products keep very well if protected from exposure to air and insects, they are not very desirable for use during normal times. Under emergency conditions where it is necessary to save storage and transportation space, their use is warranted. While fresh and canned fruits are rich in vitamins, dehydrated fruits that have been produced commercially up to this

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time have lost most of their vitamin C; otherwise, they are about equal to fresh fruits in nutritive value.

46. Fruits, dried or evaporated.—*a.* Fresh fruits contain about 80 percent water. When marketed as dried fruits, they contain about 24 percent water. This reduction in moisture content makes them keep longer than fresh fruits. While dried fruits keep fairly well without spoiling, they are subject to mold and insect attack if held for too long a period.

b. The dried fruits of most importance are prunes, apples, apricots, peaches, raisins, and pears. They are usually served stewed (except apples and raisins) although they may also be used in other ways, such as in pies and other pastries or in sauces.

c. Dried fruits are not so valuable for health protection as fresh fruits because the drying process destroys some of the vitamin value. Otherwise they are equal. Dried fruits are especially valuable for their laxative effect.

47. Fruits, fresh.—*a.* Fresh fruits are among the most valuable foods for health protection. They are rich sources of vitamins, minerals, and roughage and should be served frequently. In order to serve them frequently without monotony, varied ways of serving should be employed. Apples may be served one day as a whole fruit, the next day (or meal) in apple and celery salad. Other ways of serving apples in fresh raw form are in various kinds of fruit salad or fruit cup or in a gelatin and fruit salad, or fresh apples may be diced or sliced and added to stewed prunes or other stewed dried fruits just before serving. The same general principles apply to other fresh fruits. Strawberries, peaches, bananas, plums, etc., may be served alone with milk and sugar or may be used for shortcake, or in a fruit salad, etc. Oranges, grapefruit, melons, pears, grapes, cherries, etc., are served alone or in combinations as fruit salad, gelatin and fruit salad, etc. Fruits served raw should be chilled before serving in order to bring out their best flavor.

b. During the summer and fall many kinds of fresh fruits are available and even during the winter months the following may be had:

Apples.
Oranges.
Bananas.
Grapefruit.
Pears.

c. Watermelon is served often during the summer months. The rinds are frequently discarded. Watermelon rinds can be made into very palatable watermelon pickles or preserves.

48. Garlic.—See paragraph 87*d*.

49. Gelatin.—*a. General.*—Gelatin is a protein food substance. It is very easily digested. Plain gelatin is found on the market in coarse powder. There are also many commercial preparations of gelatin combined, for the purpose of flavoring, coloring, or both, with fruit juices, artificial flavoring, sugar, artificial coloring matter, or a combination of such products. These are not recommended for Army use. For the mess it is more economical to procure the pure, dry, plain gelatin in large containers, rather than the small 2 or 3 ounce packages in which flavored gelatin is sold. To use gelatin, it must be dissolved in a liquid, usually about 1 pint of liquid to 1 ounce of gelatin, and then chilled to cause it to jell (become firm). Pure gelatin, properly jelled, produces a firm, clear, jellylike mass, without odor, flavor, or color.

b. Uses.—The use of gelatin in frozen desserts prevents ice crystallization or a grainy texture. In the mess, gelatin may be used to make a variety of salads, puddings, and desserts, as a binder in meat loaf, croquettes, etc., and

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in cake icings and salad dressings. Added to milk or cream, especially evaporated milk in the proper proportions, it makes whipping easier. Pure gelatin blends well with most foods and provides a means of using leftovers in a great number of ways. Meat, fish, eggs, fresh or canned fruits and vegetables, fruit juices, cold soups, and even cooked cereals, such as rice, combined with gelatin make attractive salads, puddings, and desserts. One pound of pure dry gelatin will make 24 quarts of gelatin jelly or more than 300 liberal servings, when fruits, etc., are added.

c. Suggestions for using.—(1) Always soak (soften) gelatin in cold water, then dissolve in hot liquid or in a double boiler. Hot fruit juices or hot milk may be substituted for hot water to dissolve the soaked gelatin. The liquid used to dissolve most commercial colored and flavored gelatin, after soaking, must be boiling and should be stirred until the preparation is thoroughly dissolved. A little gelatin added to a thin soup will make it thicker and richer. Soften the gelatin in a small quantity of cold stock, and dissolve it in the hot stock.

(2) Gelatin becomes firm in a shorter time when placed in metal molds than in enamel, glass, or earthenware. Gelatin hardens much more rapidly if put in several small molds than in one large one. To hasten the stiffening of gelatin, place the mold in a pan of cracked ice to which coarse salt has been added, or use the freezing trays of a mechanical refrigerator as molds. At the temperature of the average refrigerator (50° to 52° F.), a pint mold of gelatin should become firm in about 2 hours. Always cool gelatin before placing in the ice box; hot foods raise the temperature and waste ice or refrigeration.

(3) Molds should be rinsed in cold water before gelatin is placed in them to stiffen. To unmold gelatin products, dip each mold all the way to its top edge in warm, not hot, water for a second; slightly loosen the jelly at the edges with a silver knife; withdraw the mold from the water and wipe it dry; then place the serving dish on top of the mold, invert them holding the serving dish tightly against the mold, and then carefully lift off the mold.

(4) Leftover broths from cooking meats may be congealed with gelatin to make an aspic jelly to which leftover meat or vegetables may be added.

(5) Make gelatin jellies of excess fruit juices. Cubes and other shapes of colored gelatin jelly are attractive for serving with or garnishing salads and cold meat dishes.

(6) Leftover coffee may be used to make coffee jelly, coffee spanish cream, or mocha sponge. Cocoa may be used in a similar manner.

(7) Melted ice cream should never be thrown away. Stiffen it with gelatin, stirring in a level tablespoonful of gelatin to a pint of ice cream. Chocolate, strawberry, or coffee flavor, and chopped nuts, dates, raisins, or cherries may be added to this mixture to provide an excellent chilled or frozen pudding or dessert.

(8) Ices and sherbets may be chilled or frozen more satisfactorily in the trays of the mechanical refrigerator if gelatin is used in their preparation.

(9) When cream will not whip satisfactorily, add the white of an egg or an equal quantity of dissolved gelatin to it and it will whip easily. The cream and egg or gelatin must be thoroughly chilled before whipping. To whip evaporated milk, first place the can in boiling water for 10 minutes, open the can, and stir the soaked gelatin into the hot milk until dissolved. Turn this mixture into a chilled dish and allow it to become thoroughly cold, when it may be

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whipped readily. For a heavy whipped cream, use two teaspoonfuls of gelatin soaked in two tablespoonfuls of cold water to the standard 14½-ounce can of milk.

(10) Gelatin should more than double its bulk when whipped and have a light spongy texture. Before starting to whip the dissolved gelatin, test its consistency with a tablespoon. If it is slightly thickened and falls from the spoon in heavy drops like sirup, it is ready to whip. Set the bowl of sirupy gelatin in a pan of cracked ice while whipping it. It should become light and fluffy in about 8 minutes. During the whipping, stir occasionally with the beater to break up any large air bubbles.

(11) In making mayonnaise or cooked dressing which is to be kept for several days, stir in a little gelatin which has first been softened in cold water and then dissolved over hot water. This keeps the dressing firm.

(12) When making croquettes, add a little gelatin which has been softened in cold water and dissolved over hot water. Use only enough cold water to reduce the gelatin to a liquid. Stir the gelatin into the croquette mixture and set aside until it stiffens. Croquettes may then be shaped easily, and the heat of frying will dissolve the gelatin, leaving them soft and creamy on the inside.

(13) Gelatin cannot be successfully combined with fresh pineapple, fruit or juice, without first scalding the pineapple. This does not apply to canned pineapple which has already been cooked.

(14) Gelatin desserts may be topped with whipped cream, sprinkled with chopped nuts, dates, raisins, candied fruit, or toasted, tinted, or plain cocoanut, and garnished with lettuce, celery, or cheese.

(15) Gelatin desserts and salads may be prepared hours before needed or even the day before at convenient times.

(16) Gelatin is not recommended for use in pies made in Army messes.

50. Grits, hominy.—This is very similar to granulated corn meal except that it is coarser. It may be prepared the same as corn-meal mush.

51. Ice cream.—*a.* While in some communities ice cream and ices may be purchased at reasonable prices in 5-gallon lots, nevertheless a considerable saving may be made by making them in the mess. Ice cream is not difficult to make. (See par. 122.)

b. The food value and quality of ice cream depend upon its ingredients as it may be made with a high or low milk fat content. Ices have a low food value as they are mostly water with added fruit flavor and sugar. Ice cream and ices are refreshing and palatable.

c. Ice-cream mixes can now be bought in almost any amount. These have all the ingredients (cream, milk, gelatin, flavoring, sugar, etc.) needed to make ice cream. All that is necessary is to freeze them. However, it is usually cheaper for the mess to make its own ice-cream mix.

d. Ice cream can be served in the mess in many ways other than plain and on pies. It may be added to a fruit cup in the form of topping. It may be served as a sundae using sirup from canned fruits previously opened and with left-over sliced fruits.

52. Jams, jellies, preserves, and fruit butters.—*a.* Pure jams, jellies, preserves, and fruit butters are made from fruit or fruit juice and sugar. Imitations are made chiefly from glucose (corn sirup) and coloring, contain little or no fruit or fruit juice, and are inferior in flavor and food value. The label must state whether the product is an imitation.

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b. Preserves and jam are very similar, the difference being that in preserves the fruit is whole or in relatively large pieces while in jam it is cooked down into a mush consistency. Jelly does not contain the fruit itself, only the juice of the fruit and sugar. Fruit butters are made from fruit which has been cooked and then strained to remove all fiber, seeds, etc., and to produce a smooth paste, to which sugar is added.

c. Jams, jellies, preserves, and fruit butters make good substitutes for butter. This gives variety to the mess. They go well with coffee, cake, biscuits, rolls, etc. They may be used in jelly rolls and pastries.

d. As the sugar content of jams, jellies, and preserves is high and sugar is a source of energy, the calorific value of these foods is high.

53. Lard and lard substitute.—*a.* Lard is rendered hog fat. Lard substitute is made in two forms:

(1) *Compound,* composed of a vegetable oil to which is added sufficient hard fat (such as beef stearine) to give the hardness and appearance of lard, and

(2) *Vegetable shortening,* a hardened vegetable oil (such as cottonseed or corn oil).

b. The cost of lard and the compound type of lard substitute is usually nearly the same. Lard may sometimes be a little higher and sometimes a little lower in cost than compound. Vegetable shortenings often cost more than either lard or compound. This is especially true of the nationally advertised brands. Preference between shortenings is mostly a matter of comparative cost. All are used for the same purposes except that lard substitute (either compound or vegetable shortening) is superior to lard as a cake ingredient, as lard is likely to impart its characteristic flavor to the cake. The food value of lard and lard substitute is about equal. They are almost pure fats and, therefore, have a very high energy value. They furnish no vitamins, minerals, or bulk.

c. Lard and lard substitute are used for frying, for greasing bread and cake pans, and for shortening in breads, sweet dough, pie crust, cakes, and other pastry. Either may be used as a substitute for butter in cooking and baking; however, this will not give the color, richness, and delicate flavor imparted by butter.

54. Lard replaced by rendered or other fats.—While it frequently is necessary to purchase a lard or lard substitute for the mess, it is possible to make considerable savings by using other fats for frying. The following fats can be used but should be strained and clarified as shown in paragraph 86:

Excess fat cut from fresh beef or pork and rendered.
Drippings from roasted beef or pork.
Fat skimmed from soup stock.
Drippings from fried meats, especially bacon.

55. Macaroni, noodles, spaghetti, etc.—*a.* The different forms and sizes of these pastes are merely a matter of different molds in the machinery and cutting to desired size. Noodles are made from the same kind of paste as macaroni and spaghetti except that eggs are sometimes included in noodles which are then called egg noodles.

b. Boiled macaroni is simple to prepare (see recipe 181). It may be made more attractive for serving by the addition of a sprinkling of ground boiled ham, paprika, and a bit of parsley. A more tasty way of serving it is baked (see recipe 181).

c. Noodles may be added to soup or cooked like macaroni. A little butter added to noodles just before serving improves flavor and appearance. Macaroni,

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spaghetti, and noodles are subject to insect attack. A few packages should be opened when received and inspected for insect infestation.

56. Mayonnaise.—See paragraph 39.

57. Milk, condensed or evaporated.—*a. General.*—Evaporated or condensed milk is marketed in two forms:

(1) *Unsweetened* evaporated milk is milk that was reduced to less than one-half of its original volume by the evaporation of water. It is marketed in 8-ounce, 14½-ounce, and no. 10 cans. The cans are labeled STERILIZED UNSWEETENED EVAPORATED MILK, and it is commonly referred to as evaporated milk. Evaporated milk keeps well if not exposed to high temperatures. It should be stored in a cool place, away from steam coils and radiators. At no time should a mess have on hand more than a 3 months' supply. If more than one lot of milk is on hand, the oldest should be used first.

(2) *Sweetened* condensed milk is milk that has been condensed to a greater extent than evaporated milk, and to which sugar has been added to preserve it. The canned product has approximately 40 percent of sugar. It is marketed in 14-ounce and 15-ounce cans, and is labeled SWEETENED CONDENSED MILK. It is preserved by its sugar content. It should be stored in a cool place.

b. Food value.—Evaporated milk after being diluted with an equal quantity of water has a food value equal to that of fresh milk, except that a little of the vitamin value which is present in the fresh milk is destroyed by heat in making evaporated milk. Sweetened condensed milk has a high calorific (energy) value because of its high sugar content, and also provides some vitamin and mineral value.

c. Uses.—Evaporated milk, undiluted, may be used the same as cream; when diluted with an equal amount of water, it may be used the same as fresh milk. Because it is sterilized in the can, it has a cooked taste and is less palatable than fresh milk for drinking or cream for desserts. After dilution it may be used for cooking and baking in any way that fresh milk can be used. When placed on the table, it has more appeal served in a pitcher than in a can. Sweetened condensed milk is rarely used in the mess as it is not as satisfactory for ordinary use and it costs too much. Because of its high sugar content, it has limited uses for cooking.

58. Milk, fresh.—*a. General.*—Fresh milk is cow's milk with nothing added and nothing taken away. Pasteurized milk is milk that has been heated to kill all harmful germs and to improve keeping quality. Milk should be handled with great care to protect it from contamination, as it readily absorbs dirt, germs, and odors. Milk containers should be kept covered.

b. Food value.—Fresh milk is one of the most valuable foods and should be used as much as possible in the mess, chiefly as a beverage. It contains practically everything necessary for life and growth and repair of the body, except sufficient vitamin C and iron. It contains more calcium (bone builder) than any other food except leafy vegetables. Raw (unpasteurized) milk, unless produced under good sanitary conditions, may contain disease germs such as tuberculosis. Unless the sanitary conditions of the dairy are known to be good, it is far safer to serve pasteurized milk than raw milk for drinking.

c. Uses.—Milk is used as a beverage at meals in place of coffee or tea, and on breakfast foods. It is used in baking to improve the color, flavor, and food value of bread. Milk can be used in a variety of cooked dishes to enrich them and improve the flavor and appearance. The lack of vitamin C and certain

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minerals in milk may be easily made up by serving fruits, tomatoes, and leafy vegetables.

d. Inspection.—Milk delivered to a mess should be inspected at the time of delivery in the presence of the deliveryman. A few bottles should be opened to see whether the milk has soured. Cases have been known where milk was not inspected until an hour or two after it was delivered. On inspection the milk was found to be sour, but no refund could be obtained from the seller because he claimed the milk was still sweet when it was delivered and that it soured after delivery.

59. Milk, powdered or dried.—*a.* This is whole or skimmed milk from which most of the water has been removed.

b. Uses.—(1) Whole milk powder can, by the addition of water and with proper mixing, be made into a product resembling whole milk and can be used for the same purposes. Skim milk powder is used extensively in the baking industry. When added to Army bread it increases the food value and palatability. In using powdered milk, it is best to stir it into a paste with a minimum amount of water and then add the remainder of the water required. This results in better consistency, that is, less lumpiness. After adding the balance of the required water, it should be well beaten or whipped. The purpose of beating or whipping is to thoroughly dissolve all the powdered milk so there will be no lumps or spots; if any lumps remain, they can be removed by heating the milk for a few minutes (do not boil). After heating, chill in the refrigerator.

(2) Dried milk is a substitutive article of the field ration for use when it is impracticable to furnish fresh or canned milk. When added to bread, rolls, or other baked products, it improves the flavor and interior color and gives a pleasing brown crust color. It is customary in such cases to use about 3 percent of the weight of the flour; that is, if 100 pounds of flour were used, 3 pounds of dried milk would be added. When dried milk is added to bread, it is usually dried kimmed milk.

c. Keeping qualities.—As milk powder is practically free from moisture, its keeping quality is good. It keeps best in sealed containers. Skim milk powder keeps better than whole milk powder as it contains less fat. Fat becomes rancid in long periods of storage, particularly if exposed to light or air or to high temperatures.

60. Oils, cooking.—*a.* Cooking oils are made from refined and deodorized vegetable oils, principally cottonseed. They have practically the same uses and food value as lard and lard substitute. If kept on hand too long, they become rancid.

b. Cooking oil, either cottonseed or corn oil, is the best form of fat for deep frying as the smoking point is high (about 450° F.). An oil or fat should not be allowed to smoke when frying as this develops an unpleasant flavor.

61. Oils, salad.—*a.* Salad oils are vegetable oils that may or may not have been refined. The most expensive is olive oil. Salad oils made of cottonseed oil, peanut oil, etc., are generally refined oils and are quite satisfactory. Salad oils are used on salad either alone, or with vinegar, or as an ingredient in salad dressing. Salad oils become rancid if kept on hand too long.

b. Salad oils may be used for the same purpose as cooking oil. However, they are more expensive than cooking oils, have a better flavor, and are chiefly used on salads or for the preparation of salad dressings.

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62. Olives.—Olives are either ripe (black) or unripe (green). The ripe olives are not pitted and are usually served in a side dish as an appetizer with celery, pickles, etc. They are rarely cut up for incorporation in salads as green-colored olives are preferred for this purpose, having more appeal to the eye and harmonizing better with the other ingredients of the salad. As olives are high in price, they are rarely served in the mess except on special occasions, as with Thanksgiving or Christmas turkey, or on Sundays when cold meats are served. When green olives are cut up in cabbage salad, they contribute much to desirable flavor, and the quantity used depends upon the cost and quantity available—a few go a long way. As they are not used in large quantities, the small calorific and vitamin value is not important.

63. Onions, dry.—See paragraph 78.

64. Pickles.—*a. General.*—The term "pickles" means cucumber pickles, although many fruits and vegetables are pickled, such as tomatoes, cauliflower, onions, pears, celery, crab apples, watermelon rind, and combinations of finely chopped vegetables, as pickled relish. Cucumber pickles are whole or sliced crosswise or lengthwise. They are sweet, sour, or dill. The dills are genuine, imitation, kosher, or sweet. The pickles included in the ration are sour cucumber pickles.

b. Uses.—The frequent inclusion of pickles in the menu adds to the attractiveness of the meals and appeals to the appetite. Whenever cold meats are served, pickles should be served with them. They add zest to the appetite and pleasing appearance to the food with which they are served. Cucumber pickles are cut into small pieces for inclusion in cabbage salad; they are cut into long strips or sliced to make plates of cold meat more attractive; they are chopped fine or made into a relish for serving with hot meats.

c. Food value.—Pickles are a good source of vitamin B. They supply roughage. Sour or dill pickles have a very low calorific value as they contain little or no sugar. Sweet pickles contain some calorific value due to their sugar content.

65. Potatoes, irish.—See paragraph 78.

66. Potatoes, sweet.—*a.* Sweetpotatoes are classed as dry-meated, medium moist-meated, and moist-meated. The moist-meated type is often called yam. Sweetpotatoes are baked, boiled, fried, candied, and made into custard and pie. Sweetpotato pie resembles pumpkin pie both in flavor and appearance.

b. The sweetpotato is a starchy food with high energy value, and is a good source of vitamins and minerals but does not furnish much roughage. Fresh sweetpotatoes are very poor keepers. They should be stored in a dry and fairly warm place.

67. Rice.—*a. General.*—Rice is supplied to the Army mostly in the milled (white) form, but regulations require that brown (unpolished) rice be issued to native Filipino troops as it contains vitamin B which polished rice does not contain. Since the diet of the Filipino troops is more limited in variety than that prescribed for the balance of the Army, it is essential that it contain as much health protection as the more varied ration. Besides its vitamin value, brown rice also contains mineral matter and some bulk not to be found in the white rice. The calorific (heat and energy) value of all rice is high.

b. Uses.—Rice is used in many ways. It may be boiled and served hot or cold with milk. The addition of raisins or currants to the boiled rice, when used as a dessert, makes it more tasty. It may be made into puddings, or the boiled rice may be fried in cakes and served with sirup. Rice may also be

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added to soups, especially those containing vegetables or meats. Boiled rice and gravy are sometimes served as a substitute for potatoes. If served in this way, the gravy should be in separate bowls so that the men may add it to meet their individual desires.

68. Salad dressings.—See paragraph 39.

69. Salt.—The moderate use of salt lends flavor to most dishes. If cabbage, lettuce, or celery is put in cold salt water overnight it makes those vegetables crisp. Since salt has the same appearance as sugar, it sometimes happens that it is erroneously used for sugar. The best prevention is to plainly mark containers, and, if not sure, taste before using.

70. Sauerkraut.—*a.* Sauerkraut is considered one of the best bulk foods. It is an excellent source of vitamins and minerals particularly when served uncooked. Sauerkraut juice has a laxative effect.

b. Sauerkraut may be baked, boiled, fried, or in small quantities, eaten raw as a salad. It is especially adapted to serving in combination with certain meats such as frankfurters, fresh spareribs, salt pork, or fresh or cured ham. Care should be taken not to overcook it as, when it becomes too soft, it loses much of its flavor and desirable taste.

71. Sirup.—*a.* (1) There are many kinds of sirup. They differ in body and flavor. If the sirup on hand is not popular on account of its flavor, it may be given a different flavor by adding sugar (white or brown) and flavoring extract and then heating. Maple flavoring (maple sugar or maple extract) is good for this purpose. If the sirup is too thick, it may be thinned by adding water. When this is done, the thinned sirup should be heated in order to thoroughly mix the sirup and added water.

(2) A sugar sirup may be made by boiling 1 pound of white sugar, 1 pound of brown sugar, and 1 pint of water, or quantities similar in proportion. Flavor to taste with maple or vanilla extract. Corn sirup is not so sweet as sugar sirup but costs less. It is also of thicker consistency. Pure maple sirup is usually much more expensive than other sirups and, unless it can be obtained at a low price, it is not used in the mess. A maple-flavored sirup is a good substitute. Sirup, on account of its high sugar content, has much calorific (fuel) value.

b. Sirup has many uses. A kitchen-made (sugar and water) sirup may be added to baked apples to give them a better flavor and appearance. If molasses is not available, sirup may be substituted in baked beans, although the molasses is better for this purpose. Sirup may be used as a substitute for sugar in many recipes if the batch mixture does not become too liquid as a result. A little sirup added to a fruit cup improves the flavor where fruit juices are lacking. Hot baking-powder biscuits and sirup are a desirable breakfast combination.

c. Sirups will ferment (become sour) and mold if left in an open can or kept on hand too long. It is not necessary to keep a large supply on hand in the mess as sirup can be made quickly at any time from sugar and water.

72. Spices.—*a.* Spices are aromatic seeds, buds, bark, roots, leaves, etc., which are used to season foods. They are used in ground form as ground pepper, ground cloves, ground cinnamon, etc.; or whole as whole cloves, stick cinnamon, bay leaves, etc.

b. (1) Skillful cooks depend on spices to bring out and intensify the natural flavors of foods as well as to obtain the flavor of the spices. To obtain these results, spices are added in sufficient quantities, but care is used not to add

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so much that the natural food flavors are destroyed. Each dish should be tasted carefully to determine whether it is seasoned just right.

(2) Salt and pepper must be added to many foods to make them palatable; without salt and pepper they are flat to the taste. All spices are not liked by all men and only those which are liked should be used. For example, some men are fond of breads and cookies containing caraway seed, others are not.

(3) The cook should not hesitate to use quantities and kinds of spices differing from the recipe if this will result in improved flavor. Many cooks use spices too sparingly for proper seasoning. The common spices are reasonable in cost considering the small quantity needed to flavor a large quantity of food.

c. There are several different kinds of pepper. Whole pepper is used in some recipes. Ground pepper is black, white, and red. Ground black pepper is the kind most used in Army messes. It is lower in cost and has more strength than white pepper. White pepper is used chiefly to give a pepper flavor without being seen, as in mashed potatoes. Some red pepper (cayenne) is hot and is used in dishes where a hot taste is desired, as chili con carne. Some red pepper (paprika) has little strength and is used chiefly for its red color, as in macaroni, spaghetti, salads, etc., to improve the appearance.

d. A few of the other commonly used spices are listed below:

(1) *Allspice* has a flavor resembling a blend of cinnamon, nutmeg, and cloves. It may be used in spice cake, pickles, and soup.

(2) *Cinnamon* is relished by almost everyone. Sweet doughs, pies, puddings, and cakes containing it should appear frequently on the menu. Stick or ground cinnamon added to stewed dried fruits improves flavor.

(3) *Cloves* are used as a seasoning for such products as meat dressings, spice cake, and pickles. Whole cloves are used in baking ham.

(4) *Cumin seed* is used in curry powder and soups.

(5) *Curry powder* is a highly seasoned combination of spices varying slightly in ingredients according to brand or method of preparation. It usually contains black and cayenne pepper, nutmeg, cinnamon, cloves, tumeric, coriander, cumin, and ginger. It is used for seasoning stews, meats, fish, rice, etc.

(6) *Ginger* is sold in three forms—whole, whole preserved, and ground. Ground ginger is used in making ginger bread, ginger cookies, dark fruit cake, and pumpkin and squash pie. There is little use in the Army mess for whole dry ginger, but whole preserved ginger has a limited use in fruit cakes and preserves and may be used in stewed dried fruits.

(7) *Mustard* is sold in two forms—ground mustard or mustard flour which is a powder, and prepared or wet mustard. There are two types of mustard—light and dark. The dark mustard is often called German mustard. It has a sharper taste than the light mustard and for this reason it is often thought that less is required; however, the light mustard is preferred by many. Mustard may be used to increase the palatability of many foods. It should be placed on the mess table when boiled or cold meats, baked beans, frankfurters, hamburger, etc., are served. It is often used in cooking baked beans, meat loaf, and other ground meat dishes. It is also used in some salads, cheese dishes, and sour cream dishes. A small quantity of mustard may be added to mayonnaise or mayonnaise type dressing to improve flavor.

(8) *Nutmeg* may be used to advantage in the same manner as cinnamon.

(9) *Poppy* seed is used principally in baking breads and buns as a topping for flavor and appearance.

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(10) *Sage* is used principally in stuffing, bread dressing, or in soups.

(11) *Sweet* herbs, such as marjoram, savory, thyme, mint, etc., are used in making sauces to be served with meats. They are especially desirable with mutton or fowl.

73. Starch.—*a.* Starch is one of the most important sources of human food. It is a pure carbohydrate and has a high energy value but no vitamins, minerals, or roughage.

b. Starch is present in all plants or parts of plants used for food. Potatoes, turnips, pumpkin, squash, corn, beans, and cereals are all rich in starch. From some of these plants, starch is extracted by manufacture. The most important kind is cornstarch (see par. 41). Potato starch is used to some extent in bread-making as a substitute for flour. Cornstarch and rice starch may also be thus used. Tapioca is a starch (see par. 75).

74. Sugar.—*a.* Sugar is made from sugar beets or sugarcane. There is no difference between cane and beet sugar as far as cooking or baking is concerned. Starch (corn) sugar is made from cornstarch. It is not as sweet as cane or beet sugar and is not often used for general cooking purposes. Sugar has high calorific (fuel) value. In normal times it is reasonable in price and should be used extensively. Pastries, puddings, and other sweet dishes are popular in the mess and should contain enough sugar to make them of proper sweetness.

b. The term "granulated" simply means that the sugar is in crystals of a certain size. The Army uses the size "fine granulated" or "medium fine granulated." Berry sugar, sometimes called "fruit powdered", is a little finer, being used in preserving, etc. It is not necessary to use a special size in the Army mess except that powdered sugar is used for icings, etc. There are two main types of powdered sugar—ordinary and icing. The icing type has a little cornstarch added so that the icing will be smooth.

c. Brown sugar is brown because it still retains a little molasses, and this gives it a flavor of its own. It is used where its flavor and color are desired as in some types of cookies, cakes, puddings, etc. It is inclined to cake, and when this occurs it must be broken up to get best cooking results, so that it may be well mixed with the other ingredients. A good method is to break it up with a rolling pin. It will not cake readily if kept in a closed jar with a whole lemon.

75. Tapioca.—*a.* Tapioca is a starch manufactured from the cassava root. It is made in the following forms:

Small pearl tapioca.	Flake tapioca.
Medium pearl tapioca.	Granulated tapioca.

All these have the power of swelling and becoming jellylike when cooked. Pearl tapioca is used chiefly for puddings; the flake and granulated forms are valuable as binders for juicy pies.

b. Plain tapioca pudding is not very popular; fruits, eggs, milk, etc., should be added, and the pudding should be served with a sauce or garnished with whipped cream or bright-colored pieces of fruit such as cherries. A very good combination is to add diced pineapple; the contrast between the rather flat tapioca flavor and the acid flavor of the pineapple greatly improves the dish.

76. Tea.—*a.* There are three kinds or classes of tea—green (unfermented), black (fermented), and oolong (semifermented). Black tea is furnished for Army messes as it is of excellent strength and will make a satisfactory beverage if properly prepared.

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b. Tea is used as a beverage, either hot or iced. Iced tea is a popular and inexpensive beverage in hot weather. Hot tea has a stimulating quality similar to coffee and should be served occasionally instead of coffee to give variety to the menu.

c. Tea keeps well if kept dry.

77. Vegetables, dehydrated (sometimes known as desiccated vegetables).—Dehydrated vegetables will keep for long periods if protected from air and insects. They are valuable when it is absolutely necessary to save space and transportation as they are very light and have little bulk in comparison with the fresh product. They are not popular because of lack of knowledge of proper methods of preparation and at best are not as tasty as the fresh product. They should be soaked 10 or 12 hours or over night in cold water, then given a long, slow cooking at simmering heat. Potatoes and onions should be cooked for at least 4 hours or until tender. In warm weather the soaking should be shortened to prevent fermentation (souring), and the time of cooking should be lengthened. This will be governed by experience with the temperatures encountered. Dehydrated vegetables have a reduced vitamin value, but the other food value, after soaking, is practically the same as fresh vegetables.

78. Vegetables, fresh.—*a. General.*—(1) Fresh vegetables are of great importance in the diet because of their health-protective value. Most fresh vegetables are best in appearance and flavor and richest in vitamin value when freshly gathered; therefore, they should be eaten as soon after gathering as possible. This applies especially to celery, cauliflower, cucumbers, sweet corn, lettuce, lima beans, radishes, string beans, and tomatoes. Vegetables which can be kept on hand for considerable periods without harm are cabbage, carrots, onions, potatoes, and turnips, but it is necessary to go over the stock carefully at frequent intervals and throw out all which have decayed so that the good vegetables will not be affected by them.

(2) (*a*) While leafy vegetables, cabbage, lettuce, spinach, etc., are low in calorific (fuel) value, they are rich sources of vitamins, minerals, and bulk, but it must be remembered that some of their vitamin value is lost if they are cooked, and most of it is lost if they are overcooked. Therefore, raw vegetables are better sources of vitamins than cooked vegetables; however, the loss of vitamins can be kept to a minimum if vegetables are not overcooked.

(*b*) Starchy vegetables as potatoes, squash, turnips, etc., have high calorific (fuel) value. They have some vitamin and roughage value, but are not as rich sources of these as are the leafy vegetables. Starchy vegetables, in general, provide some minerals, and some are very good sources of minerals. However, since starchy vegetables are usually cooked, part of the vitamin and mineral value is lost because heat has a tendency to destroy vitamins and some of the minerals are lost in the cooking water. It is good practice to save the water in which vegetables have been cooked to use in soups.

(*c*) Leafy vegetables are valued chiefly for their health-protective value, and starchy vegetables, mostly root vegetables, are valued chiefly as an energy food. Leafy vegetables are constantly becoming more popular as their great health value is becoming generally known.

b. Kinds.—Below are descriptions and uses of the fresh vegetables usually served in the Army mess:

(1) *Asparagus.*—Sold both white and green. The white type is tenderer and usually costs more than the green. The green type has a greater vitamin

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value. There is a distinct difference in flavor. Many prefer the green type. Fresh asparagus accepted for the Army mess must be sound, clean and tender; the green color must extend well down the stalks. It must be free from wilted, crooked, fibrous, or woody stock. Large thick stalks are likely to be tough and bitter.

(2) *Beans, lima, fresh*, are but little superior to canned green lima beans. They may be purchased for the Army mess in two styles—in the pods, or hulled. The pods must be fresh, practically matured and green in color, but not underdeveloped or overripe, not dry or hard; practically clean and free from stems, leaves, sand, and dirt and from mold, decay, or disease. Diseased beans have brownish discolorations on the pod. Hulled beans must be fresh and not shrunken; well developed but not hard and dry; clean and free from mold, disease, or decay.

(3) *Beans, string*, include the green-colored and the wax or yellow types. Many prefer the flavor of fresh string beans to that of the canned kind. Fresh string beans, to be acceptable for the Army mess, must be clean and bright, tender, brittle, and not too large or too small. Old (matured) beans become very stringy.

(4) *Beets, fresh*, may be more economical at times than canned beets, but are little, if any, superior in eating quality. Only red beets (bloods) are acceptable for the Army mess. They must be tender, reasonably smooth, and practically free from dirt. They must not include excessively large beets as these are likely to be filled with tough, fibrous rings.

(5) *Broccoli* is a variety of cauliflower, which it much resembles. In general, inspection of broccoli on receipt is the same as that for cauliflower, and the uses are the same.

(6) *Cabbage*, when raw, is one of the best sources of vitamins, minerals, and bulk. It can be obtained at low cost at all seasons, and should be served often during the winter. It should be served raw oftener than cooked. It is very appetizing when served raw as slaw or cabbage salad if carefully prepared.

There are five distinct types of cabbage on the market—Danish, domestic, pointed, purple (sometimes called red), and Savoy. The Danish (sometimes called Hollander) and the domestic have very solid heads, round in shape. The Danish, domestic, and pointed types are equally satisfactory. The Savoy type has very loose heads resembling lettuce and is not desirable for the mess.

To be acceptable for the Army mess, cabbage must have heads well trimmed, be free from discoloration, solid and mature (not soft, spongy, leafy, split, or burst), and free from decay. The medium-sized heads are the most valuable, and any lot of cabbage which shows that these have been removed, leaving only large or small heads, should not be accepted.

When cooked, cabbage is usually boiled, either alone or with a ham hock or bacon for seasoning, or with corned beef. Left-over cooked cabbage is fried. It is a common fault to overcook cabbage, thus destroying its vitamin C value and also imparting an unattractive brown color and disagreeable flavor. Cook boiled cabbage only until tender; this requires about 20 minutes. There should always be some green color left when cooking is finished, if not, the cabbage is overcooked.

(7) *Carrots* are a rich source of vitamins, especially when served raw. They are palatable when grated raw for salad. They add flavor to meat

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dishes, especially roasts and stews. Carrots, to be accepted, should be firm and tender and of medium size. Those less than 1 inch in diameter or excessively large or split, broken or shriveled, should not be accepted.

(8) *Cauliflower* is used almost entirely as a boiled vegetable. Served occasionally it is well liked. Fresh cauliflower is in season during the fall and winter, from September to March. To be acceptable for the Army mess the heads must be firm, compact, white to light creamy white in color, medium to large in size; no head to be less than 3½ inches in diameter. The jacket leaves must be fresh, green, and well trimmed. There must be no spreading, discolored, or spotted heads.

(9) *Celery* is a valuable source of vitamins, minerals, and bulk. It should be served occasionally on the table as an appetizer, and used often raw in salads. The tops and leaves should be cut off and used for flavoring soups, stews, and meat dishes. The stalks are sometimes used diced in soups and meat dishes. A little diced celery greatly improves such dishes as meat loaf or braised beef.

When celery is received the leaves should be crisp and a bright green. Wilted yellow leaves indicate poor quality. Celery may be accepted for the Army mess in two styles—trimmed and untrimmed. The trimmed celery must be washed, stripped of the outside coarse and damaged branches, and trimmed of roots. The untrimmed celery need not be washed, stripped, or trimmed of roots. Untrimmed celery costs less than trimmed. Any celery, trimmed or untrimmed, to be accepted for the Army mess must be well bleached (practically pure white), tender and brittle, and free from hollow, slimy, or rusty branches.

(10) *Corn.*—There are two types of corn—sweet (sugar) corn and field corn. Either is suitable for corn on the cob if picked while young and tender. When in season, fresh corn is often quite low-priced; out of season it is very expensive and the quality may not be good. When received in the mess, it should be carefully inspected by husking ears selected at random, as many ears may be only partially covered with kernels; however, it cannot be expected that all the ears will be completely covered to the tip end with kernels. If the kernels look withered or have a glazed appearance the corn is old and tough. The kernels which are tender are plump and milky, and when pressed with the thumb nail they are easily punctured and the milk spurts out. Only freshly gathered corn is satisfactory as it does not keep well after being harvested. When inspecting, look for ears that have been injured by worms or have wilted, discolored husks. If only a few ears are like this the corn may be accepted, but if there are too many the corn should be rejected.

Boiling on the cob is the most popular method of preparing fresh corn. Before cooking, the corn should be carefully freed from both husks and silks. Overcooking should be avoided; 12 minutes in boiling water is sufficient. Left-over cooked corn on the cob may be used by cutting away the kernels and using these warmed over in milk as a vegetable, or adding them to soups or stews.

(11) *Cucumbers* are appetizing and nutritious. They are sliced (or cut) for vegetable salads or are sliced in vinegar, or used sliced to garnish other dishes. Good-quality cucumbers are long and dark green. None under 5½ inches long should be accepted.

(12) *Eggplant* is fried in deep or shallow fat or baked. Served occasionally it is popular, and is economical when in season. To be accepted for the Army

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mess, eggplant must be firm, of good average size, and of good solid color. No eggplant shall be less than 3½ inches nor more than 6 inches in diameter. It must be free from withered, spongy, or spotted stock.

(13) *Endive* furnishes leaves which are used for salad or for flavoring in soups and stews. It may be served occasionally when in season.

(14) *Lettuce* is one of the best sources of vitamins, minerals, and roughage. In these respects it is about equal to cabbage, but is higher in cost. However, it is not necessary to use much lettuce for each portion. One leaf is sufficient as a base for fruit or vegetable salads or as a garnish. Heads of lettuce which have been chilled and crisped by soaking in cold water may be cut into eighths and served as a salad with dressing. To be accepted for the Army mess, lettuce must be fresh, well trimmed, free from excessive rusty or withered outer leaves, and fairly firm; it must not be wilted, decayed, or burst.

(15) *Okra* (often called gumbo) furnishes seed pods, which, when young and tender, are used in soups and meat dishes, being usually sliced across for this purpose. They may also be used in salads. When used in soups and stews, okra has a thickening effect and adds a flavor much liked by many persons. The chief test for quality is to cut for tenderness. Wilted or discolored okra should not be accepted. Canned okra can be obtained when the fresh is not available or high in cost.

(16) *Onions* are used in two forms:

(*a*) Young green onions which are served in season as a table relish or salad. The tops should be cut off and used to flavor soups and salads.

(*b*) Mature onions which are used during the entire year in many ways—sliced in vinegar, raw in salads or sandwiches, cooked with meats and soups, boiled and served with butter or cream sauce, baked, or fried.

Onions have considerable health-protective value. They are good sources of vitamins, minerals, and bulk. They are odorous and should not be stored near foods which take up odors. If sprouts appear on onions, these sprouts should be removed as they quickly spoil the onions.

In inspecting young green onions, see that they are tied in bunches and that the bulbs are clean, firm, white, and small to medium in size. The tops should be fresh and green. There must be no excessively large bulbs and no slimy or discolored stock.

Mature onions must be firm, dry, and well cured, free from doubles, splits, bottlenecks, scallions, or damage from insects or disease. They must be free from excessive adhering dirt. They must not be decayed or discolored.

(17) *Parsley* furnishes curled green leaves valuable as a garnish or for flavoring soups and meat dishes. A little chopped parsley greatly improves the appearance and palatability of many dishes when sprinkled over the top as a garnish just before serving. Only the green tops are to be accepted and these must be curly; there is a variety of smooth parsley which is undesirable. If parsley has a yellowish discoloration it should not be accepted.

(18) *Parsnips* have a distinctive flavor which is not universally popular. However, it is probable that parsnips could become quite popular in the Army mess if prepared by the different methods given in the recipes in this manual. To be accepted for the Army mess they must be firm, reasonably clean, trimmed of tops, and not less than 1 inch in diameter. They must be free from shriveled, discolored, woody, or pithy stock, or stock having secondary roots.

(19) *Peas* (fresh, green, in pods) may be served when in season as they are low in cost at this time and the flavor is preferred by many to that of

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canned peas. Care should be taken to avoid overcooking—cook only until tender, about 15 minutes. The pods must be of good green color and filled with tender, well-developed green peas of good color and flavor. If the peas are old, tough, and woody they should not be accepted.

(20) *Peppers* (green, sweet) are one of the finest health-protective foods. They should be extensively used in the Army mess, cut or sliced raw in salads or as stuffed peppers. A little sliced or cut green pepper in stewed tomatoes adds a very fine flavor. To be accepted for the Army mess they must be medium to large in size, well shaped, of good green color, firm, bright, and brittle, and free from soft, spotted stock, or stock that is turning in color.

(21) *Potatoes, irish*, are valued chiefly as an energy food, but also furnish vitamins and minerals. They furnish no roughage if peeled, but do furnish roughage if the skins are eaten. They should be stored in a cool, dark, well-ventilated place. If the storage place is too dry, they will wither; if too warm and moist, they are inclined to decay and sprout. Sprouting robs them of food value and the sprouts should be rubbed off as soon as they appear. Freezing quickly ruins potatoes. Irish potatoes are served in many ways—fried, boiled, creamed, mashed, baked, and in soups. Boiled and then chilled they are used in salad. Leftover mashed potatoes may be added to salads, fish cakes, meat loaf, croquettes, etc., or fried as potato cakes. Irish potatoes received in the Army mess should be inspected to see that they are not badly misshapen, and that they are free from freezing injury and soft rot.

(22) *Potatoes, sweet.*—See paragraph 66.

(23) *Pumpkin* (fresh) is baked, steamed, or fried. Fresh pumpkin should be rich yellow with no green showing on the rind as any green portions will have to be trimmed away to prevent a bitter flavor. No pumpkin should be accepted if it has been damaged, or if it shows any rot, mold, or disease. It is more convenient to use canned pumpkin, but it may be more economical to use fresh pumpkin where it can be obtained at low cost.

(24) *Radishes* are valuable for vitamins and roughage. They are popular and should be served often as a table relish or in vegetable salads. When used in salads, they are cut or sliced. When received they must be free from excessive dirt, firm, tender, and crisp and tied in bunches. They must be practically free from pithy or hollow stock. The tops must be fresh and clean. When inspecting, a few should be cut at random to see that the interior is not pithy or hollow and that there are no worms.

(25) *Spinach* is one of the most valuable health-protective foods. It is in season throughout the year in many sections of the country and can be served as a fresh vegetable at reasonable cost, and as a substitute for lettuce when lettuce is high priced. It is palatable served hot with simmered beef, cold meats, fried liver and bacon, or with hard-boiled eggs.

Fresh spinach should be thoroughly washed before cooking. Great care should be taken to avoid overcooking. Boiling for 10 minutes is enough.

Spinach accepted for the Army mess must be tender, of good green color, and reasonably clean. There must be no overgrown (tough, woody) or yellow, withered stock.

(26) *Squash* is sold in two types—summer and winter. The main point of quality in summer squash is tenderness. To be accepted for the Army mess it must not be so matured or hard shelled as to be resistant to the thumb nail, and must be medium to large size, free from spotted and discolored stock, and practi-

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cally free from dirt, and insect or mechanical injuries. Extra large summer squash is likely to be tough. Summer squash usually has a light green to greenish yellow outer color and a smooth skin. Winter squash has a dark green, lumpy rind. Winter squash must be fully matured, medium to large in size, solid and hard shelled.

Summer squash is boiled, steamed, or fried, while winter squash is boiled, steamed, fried, baked, or used for pie. Squash pie has a flavor similar to pumpkin pie.

(27) *Tomatoes* are one of the best sources of vitamins and are a fair source of minerals and roughage. They should be served often. A great value of fresh tomatoes is for serving raw, sliced or cut, as salads, alone or in combination with other vegetables. If not fully ripe when received, they may be held in storage until ripe. When accepted, fresh tomatoes must be turning pink to full color, firm, normal shape, clean, reasonably smooth, and sound, free from rot and decay. No immature or overripe or soft tomatoes should be accepted. They must average not less than 2 inches in diameter.

(28) *Turnips* are a starchy vegetable with a high energy value. They are rich in minerals and are a fair source of vitamins and roughage. There are several varieties, white and yellow, including rutabagas sometimes called Swedes. There is no difference in food value, but using the white and yellow varieties alternately gives variety in the mess. Turnips may be served boiled and mashed, or boiled and creamed, or cut or sliced and cooked in stew or with roasts. To be accepted for the Army mess they must be firm and solid, no white turnip to be less than 2 inches and no yellow turnip less than 3 inches in diameter. They must be free from hollow, pithy, fibrous, or woody stock.

79. Vinegar.—*a.* Vinegar is made from a number of different materials and is sold as cider, malt, distilled, grain, etc. While these different vinegars have different colors, the flavor is about the same, and there is little or no choice between them. Special vinegars are made by addition of certain spices, such as tarragon; these are expensive and have little use in an Army mess.

b. Ordinary vinegar is about 96 percent water and contains about 4 percent acetic acid. Concentrated vinegar might be issued in the field. It contains about 10 percent acetic acid and must be diluted before using as it is so strong that using it undiluted might be dangerous.

80. Yeast.—Yeast is used chiefly in the mess in compressed (slightly moist) or dried form. Fresh compressed yeast is highly perishable and should only be bought to meet demands from day to day. It should be kept in a refrigerator until used. It will very seldom occur that neither compressed nor dried yeast can be obtained, even in the field, and where not obtainable the use of baking powder for leavening hot cakes, biscuits, or even rolls and bread will be satisfactory for short periods. Dried yeast does not have sufficient strength to produce good results if added direct to a dough, but should be used in a sponge or for making a starter the night before.

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SECTION IV

PRINCIPLES AND PRACTICE OF COOKING

	Paragraph
Cooking, general	81
Preparation of foods for cooking	82
Heat, use in cooking	83
Oven temperatures, practical method of determining	84
Cooking in water	85
Cooking in fat	86
Seasoning of foods	87
Meats, cooking terms, defined	88
Meats, seasoning	89
Meats, principles of cooking	90
Simmering	91
Meats, roasting	92
Meats, searing	93
Meats, broiling	94
Meats, frying	95
Meats, stewing	96
Meats, braising	97
Beef, cooking	98
Specification beef, cooking	99
Beef, sundry cuts, cooking	100
Pork, cooking	101
Pork, sundry cuts, cooking	102
Veal, cooking	103
Lamb and mutton, cooking	104
Sausage, cooking	105
Reindeer, cooking	106
Meats, carving and serving	107
Soups	108
Gravy, cooking	109
Fish, cooking	110
Eggs, cooking	111
Vegetables, cooking	112
Salads and dressing	113
Cereals, cooking (oatmeal, cornmeal, etc.)	114
Bread, baking	115
Cake, general	116
Cakes, kinds	117
Cakes, baking	118
Pies, baking	119
Other desserts	120
Beverages	121
Ice cream	122

81. Cooking, general.—*a.* When cooking was first discovered, the primary object was to make food more appetizing than when in the raw state. It is now known that proper cooking, in addition to making food more appetizing and easier to chew, makes it more digestible, and also destroys any disease germs or parasites which may be present in the food.

b. Skillful cooking is an art, acquired by experience and training. The experienced and skillful cook does more than apply heat to food—he knows how to blend various food substances so that appetizing flavors are developed; how to season for the same result; and how to get the most out of the food supplies on hand.

c. Although it requires experience and training to become an expert cook, anyone, after having learned the principles of cooking, can cook a satisfactory and appetizing meal by following the recipes given in this manual. These

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principles of cooking are simple but all-important. Two of them which should be carefully observed are use of the proper temperatures and proper cooking times for different foods. All foods cannot be cooked at the same temperature and for the same length of time. Some meats require long cooking at moderate temperatures, while others can be cooked at high temperatures for short periods; green vegetables should be given a short cooking; pastry is baked for a short time at comparatively high temperature, etc. From the foregoing it will be seen how important it is to learn the basic principles of cooking before starting to cook.

d. The term "cooking" is often used to mean the preparation of food for cooking as well as the actual cooking. This preparation may be merely peeling, as in the case of onions, potatoes, etc., or it may include cutting, slicing, grinding, chopping, etc. While preparation changes the form of food, the actual cooking may not only change the form but may also change the flavor or chemical composition, thus rendering the food more appetizing and digestible. An example of this is the cooking of potatoes and other starchy foods. Starch, when raw, is difficult to digest; when changed by cooking it is easy to digest.

82. Preparation of foods for cooking.—Scrupulous cleanliness is the first consideration in the preparation of foods. The clothing and person of the cook, the utensils, and the food itself should be in as clean condition as possible. Much sickness has been traced directly to polluted foods or insanitary conditions in the kitchen. The food should be inspected and sorted and all decayed or unfit portions eliminated, followed by the necessary cleaning, trimming, cutting, soaking, or other operation preliminary to the actual cooking.

a. Canned foods.—(1) *Inspection before cooking or serving.*—Before cooking or serving any canned foods, inspect the exterior of the cans for signs of spoilage (see par. 33*b*). After opening the cans, note whether there is an unnatural or disagreeable odor, or whether the contents seem unnaturally mushy, sloppy, or discolored. Never serve the contents of such a can, or of a can which shows signs of spoilage before it can be opened, as the food may be poisonous. Hold such cans for inspection by a commissioned officer.

(2) *Holding canned foods after opening cans.*—The popular belief that canned foods must be emptied from the can immediately after opening to prevent spoilage is erroneous. It is not necessary to empty a can immediately after opening as (under the same conditions) food in a tin can will not spoil any more rapidly than in any other container. Canned foods are cooked when canned. Cooked foods will not spoil as rapidly as fresh foods, but any food will spoil eventually if exposed to the air. Unconsumed portions of cooked foods (canned or otherwise) which must be held over should be stored in the refrigerator in a clean container which can be covered. Like many other foods, canned foods may become moldy or sour after opening, in which case they should not be used.

(3) *Use of liquids from canned foods.*—See paragraph 33*a* (4) (*a*).

b. Meats.—(1) As the first step in preparation of meat for cooking, it should be a regular practice to examine it to determine whether it has become tainted. Meat which is even slightly tainted may cause digestive disturbances or even serious illness. The odor of the meat should be clean and natural; if there is the slightest suspicion of unnatural or spoiled odor, the meat should not be used except by authority of a commissioned officer. Meat should never be washed, but should always be wiped with a damp cloth preparatory to cooking.

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(2) Tender meats need no special preparation for cooking, but less tender cuts of beef require special preparation. (See par. 99.)

(3) Meats for stew or fricassees are cut into small pieces.

(4) Poultry is dressed and drawn, if necessary, and cut into pieces if intended for stew or fricassee.

(5) Frozen meats are thawed. (See par. 21.)

(6) Meat which has more fat than needed to make it cook well (as is the case with some portions of the beef carcass and some cuts of pork) should have this fat trimmed away. The fat should be rendered for use in frying. No lean meat should be cut off with the fat because lean meat yields practically nothing but water when rendered and consequently becomes a loss. It is better to allow some excess fat to remain on the meat as this makes the meat more tasty (not so dry), and the drippings are caught in the pan and enrich the gravy.

(7) Further suggestions in the preparation of meats are given in paragraphs 88 to 106, inclusive.

c. Vegetables.—(1) Fresh vegetables must be carefully washed and cleaned to remove dirt and insects. Vegetables are best when freshly gathered. Soaking in cold water keeps them from wilting and restores freshness if they are wilted. Soaking also helps to remove worms and lessens the odor of onions, cabbage, and cauliflower. The following fresh vegetables should be kept in cold water a short time before cooking: beets, carrots, cabbage, cauliflower, onions, parsnips, potatoes, spinach, squash, and turnips.

(2) Dried vegetables, such as beans, should be well cleaned and soaked over night in cold water before cooking. This shortens the time required for cooking. In hot weather it may become necessary to shorten the time of soaking to prevent souring unless they can be kept in an ice box over night.

(3) Hints for special treatment of certain vegetables before cooking are given below:

(*a*) *Green beans and peas* should be strung or shelled and washed immediately. If cold water is allowed to stand on them very long, it removes much of their nutritious quality.

(*b*) *Beets.*—Care should be taken to avoid breaking the skins as this will cause much of the coloring matter to escape in cooking. Skin after cooking.

(*c*) *Cabbage.*—Remove any wilted outer leaves, cut into halves or quarters depending on size of heads, wash thoroughly to remove dirt and insects, and soak in salted cold water for about 1 hour before cooking. This soaking insures that the cabbage will be clean and also makes it tender and crisp.

(*d*) *Carrots.*—Skin or peel before cooking. If small, serve whole; if large, slice lengthwise before cooking, or they may be diced to serve with peas.

(*e*) *Celery.*—Exposing celery to a warm, dry atmosphere makes it tough and stringy. It should be kept in the refrigerator. Damp paper or cloth should be wrapped around the stalks, leaving only the leaves exposed to the air.

(*f*) *Cucumbers.*—Peel, slice, and place in ice-cold salted water for at least 3 or 4 hours before serving. They are usually served raw as salad.

(*g*) *Parsnips.*—Pare before cooking. If small, cook them whole; if large, cut lengthwise.

(*h*) *Potatoes* (irish) should be fairly uniform in size in order to be uniformly cooked. Care should be taken to prevent waste in peeling. Peeled potatoes should be kept covered with cold water until ready to cook to prevent

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darkening. They must not be kept too long in this way as they might sour. New potatoes should be scraped—old ones peeled.

(*i*) *Spinach.*—Remove grit by washing thoroughly, changing the water at least six times.

(*j*) *Squash.*—Cut into pieces for boiling or baking. Before boiling winter squash, the hard thick rind should be cut off.

(*k*) *Tomatoes.*—Wash and then scald for about 1 minute in hot water. The skins are then easily removed.

(*l*) *Turnips.*—If small, cook whole; if large, cut or slice before cooking.

83. Heat, use in cooking.—*a.* While all the general operations of the kitchen are called *cooking*, the term applies particularly to the application of heat to the food. This heat creates new flavors in the food and generally improves its edible properties and digestibility. Heat, assisted by moisture, swells and bursts the starch cells in flour, rice, and potatoes; hardens the proteins of eggs, fish, and meats; and softens the fibrous substances in meats, vegetables, and fruits. The quantity of heat depends upon the required *temperature* and the *time* of cooking as well as the size, density, and other properties of the food to be cooked.

b. Temperatures and times of cooking.—(1) Tables showing temperatures and times of cooking for different foods are given in paragraph 5, appendix II. On examining the table of temperatures, it will be noted that they vary greatly for different foods. Best results will be obtained by using the temperature indicated for each food. Further, this temperature must be uniformly maintained during the entire cooking period. It must be remembered that it requires time for the heat to penetrate to the center of the article being cooked. If the temperature is allowed to rise suddenly, the outside may become scorched or burned before the center is cooked.

(2) The proper temperatures and times for cooking are also shown in the recipes for various foods and dishes given in this manual. However, a study of the table and observation of a few rules will greatly assist the cook in understanding this important feature of cooking. A knowledge of these general rules will insure good cooking even when recipes are not available. These general rules are given below:

(*a*) *In the oven.*

1. *Starchy foods* (breads, pies, potatoes, squash, macaroni, etc.) are cooked at high temperature for a short time. A quick oven (400° to 450° F.—9 to 12 counts) is used and the time of cooking is not over 1 hour.
2. *Sweet dough products* (rolls, buns, coffee cake, etc.) and cakes, pastries, cookies, etc., are baked in a medium oven (325° to 400° F.—12 to 16 counts). These products contain a high percentage of sugar and, because sugar will caramelize (turn brown or black) easily in great heat, these foods will scorch or burn on the outside before the inside is cooked if they are cooked in heat greater than 400° F. The time of cooking is not over 1 hour and usually less than 30 minutes.
3. *Protein foods* (meats, beans, fish, etc.) are roasted or baked for a longer time than starchy foods, but the temperature is lower. Meats are roasted in a moderate oven (250° to 325° F.—16 to 18 counts) and are braised in a slow oven (200° to 250° F.—18 to 20 counts) or at simmering temperature (180° to 200° F.—22 counts). Meats can be cooked at high temperatures (and sometimes are so

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cooked by careless or inexperienced cooks), but this impairs palatability and increases cooking losses (see par. 92). Beans should be baked in a slow oven as a high temperature toughens the skins.

(*b*) *Frying.*—All foods are fried at a relatively high temperature. This is a necessity so that the hot fat will quickly seal the surface and prevent grease penetration. In order to insure that the center will be cooked before the outside has had time to become scorched, fried foods are cut in relatively thin or small pieces. In other words, a thick piece of meat or other food cannot be fried successfully. For these reasons (high temperatures and thin pieces of food) frying is a quick method of cooking.

(*c*) *Cooking in water.*

1. Vegetables, when cooked in water, are cooked at boiling temperature with the exception of dry beans which are simmered.

2. Vegetables are boiled only long enough to make them tender. They should never be cooked longer than this. A maximum of 20 minutes is required for the leafy vegetables (as cabbage, spinach, etc.) and between 30 and 45 minutes for the starchy and root vegetables (as potatoes, carrots, onions, turnips, etc.). Dry beans, being cooked below the boiling point, require a longer time.

3. Meats should never be boiled. They should be simmered. This requires a longer cooking time than vegetables.

c. As explained in *b* (1) above, it requires time for heat to penetrate to the center of food. Therefore, a thick article of food as a roast of beef requires longer than a thin article as a pork chop. If a roasting pan is filled with pieces of beef, some weighing 2 pounds and others weighing 8 pounds, the smaller pieces will be cooked first. Unless these smaller pieces are removed from the oven they will become overcooked before the larger pieces are cooked. Therefore, an effort should be made to cut the pieces to uniform size. This also applies to potatoes and many other foods. If it is desired to cook a food for a longer time at low temperature (as beans and less tender cuts of meat), a fireless cooker is valuable. See paragraph 136.

84. Oven temperatures, practical method of determining.—A practical method of determining approximate oven temperatures in the absence of a thermometer is to insert the hand well into the oven and count the number of seconds you are able to keep it there, usually until a burning sensation is felt under the fingernails. This method is termed the oven count. If the hand can be left in the oven for about 18 seconds, the oven is called an 18-count oven, and the heat is called moderate (about 250° F.), while a 12-count oven is when the hand can be left in the oven for 12 seconds, which is a quick oven (about 400° F.). The table given in paragraph 5, appendix II, shows oven counts and time of cooking for various foods; that is, how long to cook the food at a certain oven count.

85. Cooking in water.—*a.* Water is important in cooking. It conducts heat throughout the cooking vessel easily and quickly and retains heat after the vessel is removed from the fire. During cooking some of the food is dissolved in the water; this dissolved food should not be thrown away. If not served with the food it should be used in gravies, stews, soups, sauces, etc.

b. Boiling is a quick and convenient way of cooking and requires little attention on the part of the cook as foods cannot burn or scorch while surrounded with water.

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c. Foods cooked in water have a distinctive flavor which is quite different from the flavor of foods cooked by roasting, baking, or frying.

86. Cooking in fat.—*a. General.*—Cooking in fat is done either in shallow fat (just sufficient fat to form a film between the food and the hot pan) or in deep fat (sufficient melted hot fat to cover the food). Cooking in shallow fat is called sautéing by some chefs, and some cookbooks call it panfrying; however, the term commonly used in the United States is simply frying and foods so cooked are called fried. Foods cooked in deep fat also are called fried except that potatoes so cooked are called french fried. In this manual, when it is desired to indicate that a food should be cooked in shallow fat it will be called fried (example—potatoes, fried), and when it is desired to indicate that a food should be cooked in deep fat, this manual will use the expression, "fry in deep fat."

b. Advantages.—Cooking in fat has the following advantages:

(1) It is a quick method of cooking.

(2) It gives a distinctive and pleasing flavor.

(3) Part of the fat is absorbed by the food thus increasing nutritive value.

c. Fried foods not to be served too often.—Fried foods should not be served too often as men quickly tire of them; they are unhealthful as a steady diet because of too much fat in the food and also because fat is digested less easily than other foods.

d. Frying in deep fat compared with frying in shallow fat.—(1) Frying in deep fat has advantages over frying in shallow fat. One is that the flavor is better; another, that less time is required. The chief advantage is that the food is entirely surrounded by hot fat and therefore is cooked so quickly that there is not time for fat absorption.

(2) In shallow fat the food is not entirely surrounded by hot fat and is not cooked as quickly as in deep fat. Therefore, foods fried in shallow fat usually absorb more fat than if fried in deep fat.

(3) In deep fat the food does not come into contact with the pan. In shallow fat the food is in contact with the hot pan and it frequently becomes necessary to move the pan off the fire or reduce the temperature to prevent scorching. Therefore, frying in shallow fat is frequently done at a lower temperature than in deep fat. On account of this lower temperature it requires longer for the formation of a crust on the outside of the food and longer to cook; therefore, there is more chance for the food to absorb fat, that is, become grease-soaked. In fact, many foods fried in shallow fat (as fried potatoes) never develop any crust and therefore absorb considerable fat. If the cook is not careful they will be greasy. Greasy foods are difficult to digest.

e. Frying in deep fat, procedure.—(1) The fat must be very hot so that the food is cooked quickly and a crust is quickly formed on the outside. However, the fat must not be heated until it smokes. Fat which is heated until it smokes imparts a disagreeable odor and flavor to food cooked in it. The proper temperature is just below the smoking point. An experienced cook easily recognizes this temperature. A good practical test is to drop into the hot fat an inch cube of bread from the soft part of the loaf. The bread will be golden brown in 50 seconds at the proper temperature for frying. If the cook is not certain that the fat has been heated to the proper temperature, he should test it with a thermometer. Lard substitute and vegetable shortening begin to smoke at about 450° F.; therefore, the proper temperature for frying is about 430° F. Pure lard begins to smoke at about 380° F., and the proper

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temperature for frying is about 360° F. Lard substitute and vegetable shortening are better for deep fat frying than pure lard as they can be heated to a higher temperature without smoking.

(2) *Frying moist foods.*—Care should be used in deep-fat frying of foods which have a moist surface as the moisture may form steam when it comes into contact with the hot fat, and this steam may cause the fat to boil over and catch fire, or to pop out on the cook. For example, potatoes prepared for french frying, which have been immersed in water, should be drained before being put into hot fat.

(3) *Avoid cooling fat.*—Unless the fat is kept hot it will not cook the food quickly and will not quickly form a crust on the outside. This will allow the fat to soak into the food. A common error is to introduce too much food at one time (as in the frying of doughnuts), thus cooling the fat. Another common error is to cool the fat by introduction of foods which are cold on account of having been frozen or kept in a refrigerator. Such foods should be kept in a warm room sufficiently long to lose the chill before being fried.

(4) *Rolling in batter or crumbs.*—Meat balls, potato balls, croquettes, etc., are rolled in egg batter and then in cracker or bread crumbs before frying. The egg coagulates and holds the crumbs which are quickly cooked into a brown crust. This brown crust not only improves appearance and flavor but also prevents absorption of too much fat by the food. Corn fritters, doughnuts, etc., which contain eggs quickly form their own crust and need not be dipped in egg batter or rolled in crumbs.

(5) *Drain foods after frying.*—Foods fried in deep fat should be drained after frying. This may be done in a colander, wire basket, sieve, or by laying on paper. Ordinary brown wrapping paper will do.

(6) *Fat clarifying.*—The question often arises whether fat which has been used for deep frying can be used again. To a great extent this depends on whether the fat has been heated to the smoking point, and whether any foods have been allowed to scorch or burn in it. In either case the fat will impart a disagreeable odor and taste to foods subsequently fried in it. It should be clarified. One method of clarifying used fat is to strain it by pouring the warm melted fat through a cloth. Two thicknesses of clean flour sack will suffice. This removes burned particles of food, but may not entirely remove the disagreeable odor and taste. Additional clarification may be accomplished by allowing the fat to cool until it hardens; then melt it, add a few raw potatoes cut into quarter-inch slices, and heat gradually. When the potatoes are well browned and no bubbles appear on the surface, the fat should be strained. The potatoes absorb the odors and most of the sediment and should be discarded as they will be grease-soaked.

f. Frying in shallow fat.—(1) Shallow fat is used for frying potatoes, eggs, hot cakes, hamburger, pork chops, steaks, liver and onions, etc. In some cases, as pork chops, sufficient fat for frying is furnished by the food itself, but in most cases the fat must be added. When fat is added, it should be heated before the food is placed in the pan; otherwise the food will become greasy. It is bad practice to fry raw potatoes by placing cold fat on top of them.

(2) Pork chops, hamburger, meat balls, steaks, eggs, hash browned potatoes, etc., are usually fried in shallow fat. If the fat is kept very hot, that is, kept heated to just below the smoking point, these foods will become hard

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and tough; therefore, the heat is regulated so that the temperature of the fat is considerably below the smoking point. On the other hand, if there is not sufficient heat, the food will become greasy and unpalatable. Through experience the cook learns how to regulate the heat so that the fat is kept medium hot. The result is that the food remains soft. Since it remains soft it absorbs some fat; therefore, to prevent greasy food the cook should avoid use of too much fat for frying.

g. Quantities of fat required.—The following approximate quantities of fat are required for each 100 men:

	Pounds
Frying in deep fat	10
Frying potatoes, etc., in shallow fat	2
Frying eggs	1
Frying steaks, chops, hot cakes, hamburger, etc	1

NOTE.—Frying in deep fat can be done with 5 pounds of fat for each 100 men if a smaller pan is used and less food is fried at one time; however, if quick cooking is essential, it is best to use about 10 pounds for each 100 men and a larger and deeper pan. This does not mean that these quantities of fat are required every time frying is done as fat used for deep frying can be used again.

87. Seasoning of foods.—*a.* All foods placed on the mess table should be seasoned so as to have a pleasing flavor. The quantities of seasoning given in recipes are only a guide; the expert cook seasons to taste. Because of the varying amounts of moisture, fat, sugar, etc., in foods, it is difficult to prescribe exact quantities of spices and other seasonings. Sometimes the cook falls into the error of assuming that because he has added pepper, salt, etc., the flavor is satisfactory. The only way to determine this is to taste the food. It is well to remember that seasoning, once in the food, cannot be removed. It is better to use too little than too much.

b. Left-over foods have usually been previously seasoned and great care must be used in adding seasoning, especially salt, when preparing them for subsequent meals.

c. The full strength of most spices, as sage, marjoram, cloves, etc., is not immediately noticeable in the food to which added, but increases as the food is cooked. The heat and moisture gradually bring out the full strength.

d. Garlic is used to advantage in seasoning meats, gravies, sauces, soups, salads, and salad dressings, but must be used with judgment, as many men do not care for any flavor of garlic, and to most persons a pronounced garlic flavor is objectionable. Garlic flavor, when present, should be delicate, which may be obtained by rubbing the inside of the cooking utensil or salad bowl with a cut clove of garlic; or the meat may be rubbed. Finely minced garlic may be added to any of the dishes mentioned above, but care must be taken not to use an excessive quantity. A delicate flavor of garlic makes all meats, especially roasts, more savory and appetizing, and gives a tang to soups, stews, salad dressings, etc., which is very appealing. A delicate garlic flavor can be obtained by using a garlic essence. To make garlic essence, soak a quart of garlic cloves in three quarts of olive oil. Before soaking, separate the garlic cloves and remove the dry skin. A little of the essence can be rubbed around the inside of the cooking utensil or on the surface of meat.

e. As a general rule, food should be seasoned during the process of cooking. Added flavoring and seasoning at the table cannot make up for lack of proper flavoring and seasoning while cooking.

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88. Meats, cooking terms, defined.

Bake.—To cook by dry heat in an oven. Usually applied to vegetables, pastries, desserts, etc. Not applied to roasted meats, although such meats are actually baked. See "Roast."

Barbecue.—To roast slowly (an animal), whole or in pieces, on a gridiron, spit, or over coals in a specially prepared trench. The meat is usually basted with a highly seasoned sauce.

Baste.—To pour liquid over a piece of meat during baking, roasting, or broiling in order to prevent drying or scorching. Basting improves flavor. The liquid used may be pan dripping, water, stock, milk, cream, or melted fat.

Boil.—Meats should never be boiled. See "Simmer."

Bouillon.—A soup stock made from lean beef without bone, clarified by straining, and seasoned. It may be used as soup stock or served as soup.

Braise.—A method used to cook less tender cuts of meat such as pot roast. Braising is really steam roasting (cooking in moist heat). The meat is seared (browned) in a hot pan in a small amount of fat, then simmered in a covered pan or dutch oven in its own juice; or water, stock, milk, or cream may be added. Braising may be done either in the oven or on top of the stove. It is one of the best methods of cooking the less tender cuts, as a long cooking in the moist heat makes these cuts tender when done.

Broil.—To cook by direct (radiant) heat from hot coals, a gas flame, or electric unit. Sometimes called grilling.

Broth.—The liquid resulting from simmering meat in water.

Brown.—See "Sear."

Consomme.—A soup made from two or more kinds of meat, usually beef, veal, and chicken, then seasoned, strained, and served clear.

Fricassee.—To sear or sauté meat (usually beef, veal, or chicken which has been cut in small pieces) until partly cooked, then simmer in gravy until done.

Fry.—To cook in fat, especially to cook in a small amount of fat (also called sauté or panfry or simply fry) and to cook in deep fat (also called french frying or deep-fat frying). (See par. 86.)

Larding.—Placing strips of fat on top of, or inserting into, meat to add flavor and prevent dryness in roasting. See "Lardoon."

Lardoon.—A long, slender, pencil-like portion of salt pork, bacon, or suet used for larding.

Marinate.—To allow meat to stand in a marinade (a brine or pickle, used either for the purpose of tendering meat, in which case it is composed of only water and vinegar; or for enriching the flavor, various spices, herbs, etc., being added for this purpose).

Pan broil.—To cook in a hot, uncovered frying pan, keeping the fat poured off.

Panfry.—See "Fry."

Parboil.—To simmer for a short time in order to make certain foods tender before cooking by another method.

Pot roast.—A large piece of meat cooked by braising. Chucks, necks, briskets, and rumps of beef; breast and shoulder of veal and mutton; and the shoulder, butt, and shank of pork are often made into pot roast.

Roast.—To cook in the oven by dry heat in an uncovered pan without added water, except water used for basting. Roasting is used for thick pieces of tender meat, as ribs of beef, loin of pork, leg of lamb, etc. The tender cuts should be roasted; less tender cuts (chuck, round, etc.) should not be roasted but should be braised. Poultry is usually roasted in a covered pan.

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Sauté.—To fry in shallow fat. Often called fry. Sautéing may be done on top of the stove in a frying pan, or similar pan, covered or uncovered; or in the oven, usually in an uncovered bake pan.

Sear.—To brown the outside surface quickly by high heat. Dry heat or hot fat may be used. It improves flavor and appearance.

Simmer.—To cook in water which is just below the boiling point; sometimes erroneously called boiling.

Steam.—To cook by steam.

Stew.—To cook small pieces of meat in a simmering temperature in sufficient water to cover, with the addition of vegetables toward the end of the cooking process.

Stock.—The liquid obtained by soaking and simmering meat (usually scraps) and bones for several hours. A good base for soups and gravies.

89. Meats, seasoning.—*a.* When meats are to be roasted or braised, salt and pepper are rubbed on the meat before cooking. The following quantities should be used:

Beef, lean pork, veal, and lamb—

¾ teaspoon of salt to each pound of meat.
⅛ teaspoon of pepper to each pound of meat.

Fat pork, such as butts and shoulders—

½ teaspoon of salt to each pound of meat.
⅛ teaspoon of pepper to each pound of meat.

b. When meats are cooked in water, as simmered beef and stews, salt, pepper, and other seasonings to taste are added to the water.

c. When meats are fried, either in deep or shallow fat, or broiled, salt and pepper to taste are sprinkled on before or during cooking.

90. Meats, principles of cooking.—*a.* There are several objects in cooking meat:

(1) First, and most important, to make it more palatable. Cooking meat develops a pleasant flavor.

(2) To loosen and soften the tissues, thus making it easier to eat and digest.

(3) To kill any germs which might be present. This is merely insurance; meats do not ordinarily contain any germs but might pick them up through contact with wrappers, or tables, etc.

(4) To coagulate (thicken) with albumen, thus giving the meat a better appearance.

b. Cooking of meat does not add to the food value; in fact some methods of cooking cause losses which lower the food value. (See par. 91.)

c. Methods of cooking tender and less tender meats.—(1) *Beef* (for classification as tender and less tender, see par. 98).

(*a*) Tender cuts of beef are easily cooked into steaks or roasts. When roasting, it is not necessary to use a covered pan.

(*b*) Less tender cuts of beef may be divided into two classes:

1. Those portions which can be made into good steaks and roasts by pounding steaks and by braising roasts.

2. Those portions which cannot be made into good steaks and roasts and are used in stews or ground meat dishes.

(*c*) Any less tender cut of beef can be made tender by a long cooking (about 3 hours, depending on degree of tenderness) in moist heat at low temperature (below 200° F.). (See "braising, fricasseeing, stewing", par. 88.) This long, slow cooking in moist heat is necessary to make these cuts tender.

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On the other hand, since they are already tender, it is not necessary to cook tender cuts in moist heat, and somewhat higher temperatures and shorter times can be employed.

(2) *Veal.*—Veal requires the kind of cooking given less tender meats (long, slow cooking in moist heat).

(3) *Pork.*—All pork is cooked as a tender meat but must always be cooked until well done.

(4) *Lamb and mutton.*—The same principles of cooking apply to lamb and mutton as to beef.

(5) *Poultry.*—Young poultry is tender; old poultry (fowl) is cooked by the same principle as for less tender cuts of beef.

d. The flavor of meats is improved in cooking by the addition of seasonings which may be other meats, spices, sauces, or added vegetables. Seasonings are especially important when left-over cooked meats are cooked again, as they lack flavor unless skillfully seasoned. In such cases some fresh meat is often added, and vegetables nearly always. (See par. 99.)

91. **Simmering.**—*a.* If the cooking of meat is started in cold water, the pores are not sealed and the food value of the meat is lessened because the meat juices escape into the water and carry with them some meat solids which then become dissolved in the water (see par. 93). This action is hastened by the gradually increasing heat of the water. The amount of food thus escaping from the meat into the water is dependent on three things:

(1) The amount of meat surface exposed to the water.

(2) The temperature of the water.

(3) The length of time the meat is left in the water.

If the meat is cut into very small pieces and cooked for a long time, the liquid will be much richer, but the meat itself will become stringy and less tasty and its food value will be much reduced; however, it still has some food value, as it contains most of its original protein and makes a palatable dish if combined with vegetables and seasoning. Meat cooked in this way may lose as high as 40 percent in weight. This loss is largely water, but 5 to 8 percent is material which has a high food value.

b. If meat is put into boiling water or hot fat, the albumen on the entire surface is immediately coagulated, forming a crust which prevents the dissolving of the juices and extractives. When meat is cooked in this way it has the desired meaty taste, but the broth will be poor. It is impossible to have a rich broth and a juicy well-flavored piece of simmered meat at the same time. In cooking meat for soup, put the meat in cold water and slowly increase the heat to a simmering point; this will extract all the meat juices into the broth. If it is desired to prepare simmered beef, put the meat in boiling water and keep it boiling for about 10 minutes. This sears (closes) the surface of the meat by sealing the pores and tends to prevent escape of meat juices. After 10 minutes, allow the temperature of the water to drop to about 180° F., which should be maintained until cooking is completed. If allowed to boil during the entire period of cooking, the albumen throughout the meat will coagulate and become hard and dry. The time of cooking at the lower temperature will be longer, but the meat will be juicy and tender instead of dry and tough as it would be if kept boiling during the entire cooking period.

92. **Meats, roasting.**—*a.* (1) Roasting, as applied to beef, veal, pork, mutton, and lamb, is cooking in the oven by dry heat; that is, the pan is not covered.

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When the pan is covered, the cooking is called braising, and is done in moist heat, due to the steam being kept in by the cover.

(2) As applied to poultry, roasting is cooking in the oven by moist heat, as the pan is usually covered. The texture of the flesh of poultry is such that roasting in an uncovered pan would result in excessive dryness.

(3) Braising is the best method of cooking the less tender cuts, while roasting (uncovered) is the best method for tender meat.

b. (1) The principal difference between roasting and simmering is that in simmering the meat is surrounded by water and in roasting it is surrounded by hot air. In braising it is surrounded by hot air and steam. More of the meat juices are retained in roasting or braising than in simmering. The shrinkage during roasting is mainly due to loss of water. In recent experiments it was found that the loss by shrinkage was only 6 percent when meat was roasted at 250° F., but the shrinkage was 30 percent, or 5 times as great, when the temperature was doubled.

(2) If roasted in an uncovered roaster, the meat should be basted frequently, and it may be necessary to add a small amount of water to keep the fat in the bottom of the pan from burning. If the meat has not browned enough during the last 10 to 15 minutes of roasting, increase the heat sufficiently to obtain the desired brownness.

(3) Meat which is to be roasted or braised should be placed in the pan fat side up.

c. It is very difficult to determine from outside appearances how well done a piece of meat has become. A general rule is to allow 20 to 22 minutes per pound (after searing) with oven at 250° F. for a medium-done roast and 25 to 30 minutes for a well-done roast. The most accurate method of determining how well the meat is done is by the use of a meat thermometer. Before putting the roast in the oven (after searing), the thermometer is placed in the meat so that the bulb will be as near the center of the cut as possible. The oven temperature should be as near 250° F. as possible and the meat should be allowed to cook until the thermometer registers 140° F. for a rare roast; 160° F. for a medium roast, and 180° F. for a well-done roast. Temperatures higher than 250° F. will shorten the time of cooking, but the outside of the meat may be too brown and the shrinkage will be higher. At 250° F. the shrinkage will be less, but the cooking time will be increased. Thermometers are recommended for general use in service messes.

d. In roasting lean cuts of meat, fat should be placed on top of the roast, or, if the meat is boned and rolled, on the inside of the roll. This fat may be suet, pork fat, or bacon. Where sides of beef are purchased and cod fat is available, it is well to use this fat, or other fat of the side of the carcass, in the roasting of the lean cuts. Fat backs of pork also are very good. Strips of this fat can be threaded through the lean meat by punching holes with a larding needle or other sharp, slender implement, such as a large skewer or ice pick, and then inserting the strips. The added fat greatly improves the flavor of cuts of lean meat having little or no fat.

93. Meats, searing.—*a.* Searing is done by exposing the meat for a short time to a high heat so that the surface is browned. It has been the general belief that this seals the pores of the surface of the meat and thus prevents escape of meat juices; however, recent experiments show that it is doubtful whether searing actually does this. Escape of meat juices is not actually a loss as they are used for gravy if the meat is roasted, and serve to enrich a stew. The

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browning of the surface improves appearance of a roast and adds flavor to both the roast and the gravy. For these reasons, searing is desirable whether or not it prevents escape of juices.

b. To sear meat which is to be roasted or braised, place it in an uncovered pan in a hot oven (450°to 500° F.—10 to 12 counts) for a period of about 15 minutes; or in a hot pan over the fire and turn it until all sides are browned. If the meat is deficient in fat it is well to add a little fat when searing. There is always danger of burning meat by searing in the oven and for this reason it is recommended that searing of meats for Army messes be accomplished in a hot pan on top of the stove. Searing sometimes is called browning (see *a* above).

c. It is the general practice to sear meat which is to be cooked in water (see pars. 91 and 96) by plunging it into boiling water. It is generally accepted that this seals the pores and retains the juices in the meat. This procedure is recommended whenever it is desired to produce a juicy piece of meat (as simmered beef) which has been cooked in water.

94. Meats, broiling.—*a.* Broiling is a quick way of preparing steaks and chops. Steaks should be cut from 1 to 1½ inches thick for broiling. If cut too thin they will become hard and tough. Broiled meats should be rare or medium; never well done. The temperature should be kept moderate; if too high the meat will be toughened or scorched on the outside before the center is done. For a steak 1 inch thick the time required for cooking will be approximately 12 minutes, 6 minutes for each side.

b. Broiling is by direct heat; that is, exposed to a flame or other direct heat. It should not be placed too close to the flame as this will scorch the meat. Broiling also may be done on top of the stove by placing the meat on a very hot frying pan or griddle on which a small piece of suet has been rubbed. The pan must be very hot or the meat will stick. Turn the meat often until done. This method is called pan broiling.

95. Meats, frying.—Deep or shallow fat is used for frying meats. Beefsteak, hamburger steak, meat balls, and lamb or mutton chops are fried in shallow fat; pork chops are usually fried in shallow fat, but sometimes are fried in deep fat. Croquettes, etc., are usually fried in deep fat. (See par. 86.)

96. Meats, stewing.—There are two methods of making stews; in one method the meat retains its flavor and in the other the juices are extracted and the meat will lack flavor but the broth will be rich and well-flavored. In order to have the meat retain the flavor, it is necessary to sear it in hot fat, which will make a brown stew, or sear by plunging into boiling water. After searing the meat is simmered until tender. Vegetables are added during the cooking process (see par. 90*d*). To make a stew with a rich thick broth the meat is put on in cold water and slowly brought to the simmering point. This method extracts the meat juices into the broth, but this flavor is not lost as the vegetables in the stew pick it up.

97. Meats, braising.—Braising is often erroneously called pot-roasting. It is a combination of roasting and stewing. It is a very desirable method of cooking the less tender cuts of meat. After the meat is seared on all sides a small amount of water is added and the meat covered. This gives a moist heat which is the best method of making less tender cuts tender. Cooking is continued slowly, either in the oven or on top of the stove, until the meat is tender. The usual time required is 50 minutes to the pound; thus a 5-pound piece would require 250 minutes.

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98. Beef, cooking.—In cooking beef, it must be realized that there are two general classes of meat to be considered; the tender cuts and the less tender cuts. Tender meat can be made unpalatable by improper cooking; on the other hand the less tender cuts can be made tender and palatable by proper cooking. The food value of both types is about equal. The following table is a guide to show the cuts of beef and the best methods of cooking each. Figures 1 to 10 show the location of these various cuts in the beef carcass.

TENDER CUTS

Name of cut	Form of cut	Methods of cooking
Sirloin from the loin end	Steaks	Broiling or pan broiling.
	Roasts	Roasting.
Porterhouse from the short loin	Steaks	Broiling or pan broiling.
	Roasts	Roasting.
Prime ribs	Roasts	Roasting.
	Steaks	Broiling or pan broiling.
Tenderloin	Steaks	Broiling or pan broiling.
	Filet mignon	Do.
	Roasts	Roasting.

LESS TENDER CUTS

Rump	Roasts	Braising.
	Steaks	Frying, after pounding.
Round	Roasts	Braising.
	Steaks	Frying, after pounding.
Shanks	Cut small	Stews.
	Ground	Hamburger, meat balls, meat loaf, etc.
	Cut small	Soups.
Plank	Cut small	Stews.
	Ground	Hamburger, meat balls, meat loaf, etc.
Chuck	Pot roasts	Braising.
	Cut small	Stews.
	Steaks	Frying, after pounding.
Neck	Cut small	Soups.
	do	Stews.
	Ground	Hamburger, meat balls, meat loaf, etc.
Plate and brisket	Short ribs	Braised or simmered.
Plate	Cut small	Stews.
	Ground	Hamburger, meat balls, meat loaf, etc.
Brisket	Same as plate	

99. Specification beef, cooking.—*a.* Beef is usually supplied to Army messes in quarters, alternate hind and forequarters. In every quarter of beef there are two kinds of cuts—tender and less tender. The tender cuts are easily cooked into palatable roasts or steaks. While equally as nutritious as the tender cuts, the less tender cuts require somewhat different treatment to make them into attractive dishes. Too often this problem is met by making them into stew or by grinding. While it is true that some portions of the less tender cuts (neck, brisket, navel end, shank, and flank) are not suitable for roasts or steaks, and therefore are best used for stews or by grinding, it also is true that meat from the chuck (other than the neck), the round, and rump can be made into good

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steaks and roasts if properly cooked. There is little excuse for always using these portions for stew or ground-meat dishes.

b. A good investment for any mess is the purchase of one or two steak masticators. With these, steaks from the chuck and round can be made very tender and palatable. Steaks are pounded with the masticator, which not only breaks down the tissues and makes the meat tender but also tends to flatten and give them a larger appearance. Pounding with a masticator tends to drive out the meat juices which give flavor, but the loss of these juices can be prevented by sprinkling flour over the surface of the steaks, or by rolling or dipping them in flour before pounding. The flour is then pounded into the meat and absorbs the juices as they are released, thus retaining the flavor. If masticators are not on hand, the flat side of a cleaver may be used.

c. It may occur that the menu calls for beefsteak or for roast beef, and that the mess has a quarter of beef on hand which does not provide sufficient tender meat for a meal of steak or roast. In such case the shortage can be made up by using the necessary quantity of less tender meat, for steak by pounding, and for roast by braising, and marinating before braising, if necessary.

d. Marinating is done by soaking the meat in a marinade for 2 to 4 hours, depending on size and degree of tenderness. The marinade consists of three parts water and one part vinegar and is used in sufficient quantity to cover the meat. The action of the vinegar softens the fibers and also freshens the meat. After soaking, the meat is removed from the marinade and cooked, usually by braising. The marinade keeps well and may be used again for other meat.

e. Those less tender portions which will not make good steaks or roasts can be made into many attractive dishes. There are a number of recipes in this manual which show how these cuts can be used to advantage. Too often they are used in stew with the result that the menu becomes monotonous. Variety is provided by serving them cut into small pieces for potpie; in diced form as in chili con carne; or in one of the many types of ground-meat dishes, as meat loaf, croquettes, hash, etc. Meat for hamburger or meat loaf should be ground comparatively fine. The grinder must be sharp enough to cut the meat and not shred or pull it apart, as this makes a very stringy unpalatable meat dish. In ground-meat dishes made from beef, the addition of a small quantity of ground bacon or pork fat improves the flavor. The proportion should be 1 or 2 pounds of bacon or pork fat to 10 pounds of beef. This is a good use for dry salt-cured bacon. If eggs are mixed with ground meat (1 egg to 2½ pounds of meat), the albumen of the egg will coagulate quickly when heat is applied and thus retain the meat juices and hold the meat together.

f. Frequently a mess has left-over cooked meats on hand. These can be made into stews or potpies, or into ground-meat dishes. If there is not sufficient left-over meat for a complete meat dish the quantity may be increased by adding fresh meat. This will improve the dish, as dishes made from left-over cooked meats lack the flavor of those made from fresh meats. When left-over cooked meats are made into stews and meat pies, vegetables should be added to improve the flavor. Seasonings, as sage, curry, and garlic, may be used to advantage in left-over meats. If the quantity of left-over meat is small, it may be used in a meat dressing, onions and sage being added for seasoning, and bread for volume; this dressing to be served with some fresh-meat dish.

100. Beef, sundry cuts, cooking.—Army messes are interested principally in the following sundry cuts of beef:

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a. Brains may be fried, creamed, scrambled, or simmered and fried in deep fat. They should be cooked quickly. To prepare for cooking, it is best to allow the brains to stand in cold salted water from 1 to 2 hours, then remove all arteries and blood clots. Regardless of the method of cooking, it is best to parboil the brains first for 3 or 4 minutes as this makes them tender.

b. Tongues may be simmered or baked and should be cooked slowly and skinned as soon as cool enough to handle.

c. Hearts may be baked with dressing, simmered, or braised, and should be cooked slowly. All beef hearts from animals slaughtered in federally inspected plants are cut nearly in half by Federal inspectors who inspect for beef measles.

d. Sweetbreads may be broiled, braised, or creamed. Wash in cold water and allow to soak 1 hour in fresh cold water, then drain. Cover with boiling salted water (1½ teaspoons salt and 1 teaspoon vinegar to each pint of water). Parboil for 20 minutes, then drain off the hot water and put sweetbreads in cold water until chilled or ready for use as they will darken after parboiling if not kept in cold water. After parboiling, they may be cooked in any of the methods listed; that is, broiled, braised, or creamed.

e. Liver may be fried, braised, used in meat pies, or combined with other meat for hash. It is best when fried. In braising or frying, the slices should be thin and should be cooked slowly. If cooked too fast, the liver becomes hard and leathery. It is advisable to parboil liver before frying. This makes it tender and eliminates much of the strong liver flavor which is objectionable to many men.

f. Kidneys may be broiled, stewed, or fried. They are not popular cooked alone and are best used when disguised by being added to some other meat. The kidney which comes with the hind quarter of beef may be added to the flank or shank meat for use in stews, meat loaf, hamburger, etc. Whenever used, kidneys should be cut up and soaked for a long time in cold salt water to remove any objectionable odor or flavor.

g. Tails may be braised, simmered, or used for soup. Before cooking they should be cut into pieces at the joints. Tails should be cooked slowly.

101. Pork, cooking.—*a. General.*—Pork for Army use is usually purchased in wholesale market cuts, as loins, butts, etc. It must always be cooked until it is well done, regardless of the method of cooking. Rare or medium cooked pork should never be served. There are two reasons for this: First, pork is not palatable unless well done; second, pork is sometimes infested with the trichina parasite, which, if not destroyed, may cause serious illness. This parasite is killed when the meat is heated to 137° F. at the center. Pork is well done when the center of the piece reaches a temperature of 182° F. As this temperature is well above the minimum required to kill trichina, well-done pork may be served with no fear of this parasite. When pork is an even, grayish color throughout, with little or no pink color, it is well done.

b. Cuts of pork.—The cuts of pork which are used fresh are loin, ham, and shoulder (butts and picnics), spareribs, and sundry cuts.

(1) Loins are used for roasts and chops. The weight ranges from 8 to 22 pounds.

(2) Fresh hams make very desirable steaks or roasts.

(3) Shoulders may also be used as steaks or roasts. The weight ranges from 7 to 15 pounds.

(4) Shoulder butts make excellent roasts. They are next to the rib (forward) and of the regular loin and include part of the shoulder blade. The

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weight averages 4 to 8 pounds. Boned butts (boneless butts) are also available and make a very economical roast.

(5) Picnic is the lower part of the shoulder (shoulder with the butt removed). Picnics, on account of the large percentage of bone they contain, are not as economical as butts.

(6) Spareribs are approximately 56 percent bone. They are cooked by roasting or simmering. When simmered, they are usually cooked with sauerkraut or cabbage.

c. Methods of cooking.—(1) Pork should be either roasted, fried, or braised, although some parts such as ribs and feet are often simmered. As previously stated, pork should always be cooked well done, never rare.

(2) A little lemon juice rubbed into the pork before searing adds considerably to its flavor and reduces the greasy taste. Some cooks rub the surface with a cut clove of garlic. (See par. 87.)

(3) Pork roasts should be wiped off with a damp cloth then sprinkled with salt and pepper and rubbed with flour, then seared; that is, browned by placing in a hot pan on top of the stove and turning until all sides have been subjected to the heat. After searing, the roast should be placed in an oven at a temperature of 250° to 350° F., depending upon the time available to complete the roast. A moderate oven (250° to 325° F.—16 to 18 counts) is best for roasting pork. At 350° F. the time required to get the roast well done would of course be shorter than with an oven temperature of 250° F., but the cooking losses are greater.

(4) The time required for roasting pork at 250° F. (after searing) is approximately as follows:

Loin, 35 to 40 minutes per pound for each piece.
Ham, 30 to 35 minutes per pound for each piece.
Shoulder, 30 to 35 minutes per pound for each piece.
Butts, 50 to 55 minutes per pound for each piece.

(5) No water should be added to a pork roast, and if the temperature can be maintained between 250° to 300° F., the roast should not be covered. The necessity of basting depends upon the temperature of the oven. If a high temperature is maintained (350° F.), the roast should be basted frequently, but basting is not necessary when roasting at a temperature of 250° to 325° F. The shoulder and butts should be braised. When cooked the outside color of the pork should be a uniform brown, not too dark. The crust should not be hard, but crisp, and when carved there should be little or no pink color in the meat.

(6) Pork steaks, which are cut from the shoulder or butt, and chops should be seasoned and then seared at a high temperature. When brown on both sides reduce the heat and cook slowly in a small quantity of fat for 20 to 30 minutes in a closely covered pan. This method will make a juicier steak or chop than if cooked uncovered.

(7) When simmering spareribs, the meat should be seared in boiling salted water, then the temperature of the water should be reduced to a simmer and the meat cooked until it starts to fall from the bones.

(8) Sliced cold roast pork is an excellent meat dish. However, left-over fried pork is not palatable when sliced cold and, therefore, should be made into other dishes, such as meat pie, chop suey, etc. (See "Recipes.")

102. Pork, sundry cuts, cooking.—*a.* The average Army mess is interested in the following sundry cuts:

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(1) *Hearts.*—Wash the hearts in warm water. Take out all clotted blood, veins, and arteries. Cook in salted simmering water for 1½ to 2 hours. The hearts may then be eaten or, if desired, may be browned or baked in the oven for a period of 30 minutes at a temperature of 325° to 330° F.

(2) *Tongues.*—Wash tongues in warm water. Cook slowly in salted water for 1½ to 2 hours, or until done. As soon as cool enough to handle, remove the skin.

(3) *Brains.*—Allow brains to soak in cold water for 1 to 2 hours, then wash in warm water and remove all arteries, blood clots, etc. Parboil 4 to 5 minutes.

(4) *Feet, tails, and hocks.*—These sundry cuts are usually simmered with turnips, cabbage, or rutabagas. Hocks are also baked with tomatoes or tomato sauce.

b. The cost of these sundry pork cuts is generally very reasonable and their use should be encouraged. The meat is palatable and nutritious. Many dishes can be prepared from them and thus break the routine of roasted or fried pork.

103. Veal, cooking.—*a.* Veal for Army messes is usually purchased by cuts instead of carcass. The following table shows uses of the cuts and figure 12 shows the location of the various cuts in the carcass:

Shoulder—Braised; stewed.
Chuck—Chops; braised; stewed.
Leg—Cutlets; steaks; braised.
Breast—Braised.
Rib—Braised; rib chops.
Loin—Loin chops; braised.

b. Veal is immature meat. It is low in extractives and has little fat. It requires lower heat and longer cooking than beef. It should be cooked with added fat in the form of salt pork or bacon and, if roasted, should always be braised; that is, cooked with a covered roaster, as this makes the meat juicy. Veal roasts are seared and then braised at a temperature of 230° to 250° F. for 20 minutes per pound of meat. The drippings from a veal roast should be used for making a brown gravy.

104. Lamb and mutton, cooking.—*a.* The tender and less tender cuts of the carcass of lamb will correspond to the same cuts of beef. The greater demand for the more tender cuts makes the less tender cuts cheaper. These are equally as high in nutritive value as the tender cuts and many palatable dishes can be prepared from them by careful cooking.

b. (1) The problem in cooking lamb and mutton is the same as in all meat cooking; that is, cooking the center without overcooking the outer surface. In roasting or simmering, the meat should be seared first, then the temperature reduced. Broiled cuts should be seared first, then the temperature reduced. The rules for broiling lamb or mutton chops differ somewhat from broiling beefsteak. The best method of broiling lamb or mutton chops is to first sear them on both sides, then lower the heat and finish broiling at reduced temperature, turning the chops occasionally, but being careful not to pierce the brown crust. The time required is 10 to 15 minutes. In roasting, after the meat is seared the temperature should be reduced to 300° F., allowing 30 minutes to the pound. The hardening of the surface of the roast is lessened by frequent basting, or by covering the roaster so that the steam in the roaster

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will accomplish the basting. Less tender cuts are usually made into stews, potpies, or fricassee.

(2) There is a parchmentlike skin over the outer surface of mutton or lamb which is called the fell. It should be removed before cooking, as this fell tends to give the meat a wooly taste.

c. Lamb or mutton, especially lamb, is very palatable either hot or cold, but should be served either very hot or entirely cold, not warm.

105. Sausage, cooking.—*a. Pork sausage.*—Pork sausages require cooking to kill any trichinae which may be present. Pork sausages may be fried or baked with other foods. They should first be placed in lukewarm water and this water brought to a boil; then remove from the water and fry or bake. This preliminary cooking in water toughens the casings and tends to prevent bursting. If the casings burst while frying or baking there is a loss of fat from the sausage.

b. Frankfurters.—In cooking frankfurters (wieners) the water should be brought to the boiling point and the frankfurters simmered for 10 to 12 minutes. Do not boil as this will toughen the casings. The meat of the frankfurter has already been cooked at the factory; therefore, it is only necessary to heat them before serving.

106. Reindeer, cooking.—The general rules for cooking beef should be followed in cooking reindeer meat. Due to the fact that this meat is lacking in fat, added fats should be used in cooking.

107. Meats, carving and serving.—*a.* (1) The chief objectives of good carving are to obtain attractiveness and the best flavor from the meat, and to prevent waste. Meat should never be carved with a hard, sawing motion. Carved meat should be placed on the platter with the most appetizing side up and the pieces arranged in an attractive manner, not thrown loosely on the platter. It requires no expense, and very little effort, to arrange meat neatly on a platter so that it will be pleasing to the eye.

(2) Good carving cannot be accomplished without good tools. Sharp carving knives are essential. Knives should be run over a steel just before starting to carve and frequently during the carving, if the amount of carving warrants. The steel should be held in the left hand, in a nearly horizontal position (the point slightly raised) and parallel to the body. The knife should be held in the right hand. Start the blade along one side of the steel, beginning with the heel of the knife at the point of the steel. The strokes should be reversed from side to side of the steel. All hand motion of the knife blade along the steel should be in the wrist and not a movement of the entire forearm. The touch of the blade on the steel should be light and six strokes should be sufficient; if more are required, the knife should be sharpened on a stone. If the knife is sharp the cut will be clean and even.

b. Carving rib roasts.—Beef should be sliced across the grain into pieces of uniform size and thickness convenient for individual service; not cut into chunks. Rib roasts are tempting and appetizing when neatly sliced across but have no appeal if cut into chunks. An excellent way of carving a rib roast is as follows: Stand the roast on end on a carving board or wooden table with the rib bones to the left of, and with the meat side away from, a right-handed carver. Stick a large meat fork in the bone side of the roast, low enough that the knife will not strike the fork, and hold the roast firm with the fork in the left hand; cut thin slices across the grain until the knife reaches the bone. Cut several slices in this manner, leaving them attached to the bone and then

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run the point of the knife along the bone, releasing the slices. By this method all the meat can be cut from the bones except the small strings between the ribs.

c. Carving round roasts.—Use a long thin knife. To start the carving, place the roast on a carving board with the large or rump end down and the small or shank end up. Start at the outer edge of the meat and cut across the face (across the grain) of the roast, cutting toward the round bone and making the slices about ⅛ inch thick. As the knife approaches the bone, raise the edge so that it will come to the surface just as it reaches the bone. Each slice should be about the size of the hand. Continue slicing around the roast, turning it so as to keep the cut surface of the roast level.

d. Preparation and carving of pork loin roasts.—Pork loins contain the backbone and part of the rib. The backbone should be cracked with a cleaver at about 1-inch intervals before roasting the meat. This enables the carver to cut slices from the loin through the meat and the bone. The slices should be about ¼ inch thick and every other slice will contain a piece of the backbone and the rib.

108. Soups.—*a.* Army beef, as purchased, always contains bones. Some cuts of beef are boned before cooking. The bones should never be discarded. They should be used for soup stock. An inspector never finds a raw bone in the garbage can of a well-conducted mess. Soups can be made the means of preventing waste by incorporating in them food which might otherwise be wasted, such as all raw beef bones, shanks, etc., excess liquid from canned vegetables, left-over cooked vegetables, and vegetable scraps—celery tops, onion tops, beet tops, lettuce and cabbage trimming, etc. If meat is used in soup, it should be cut into small cubes, as this aids in dissolving the meat juices into the soup by exposing more surface to the heat.

b. Soup stock.—A pot for soup stock should be found in every Army kitchen. To make soup stock, wipe the meat or bones with a damp cloth, crack the bones, and cut the meat into small pieces. Put bones and meat in a large container with a close-fitting cover and add 1 quart of water for each pound of meat and bones. Heat slowly to the simmering point and add salt; simmer for 4 to 5 hours; then cool. Fat will form on the top after cooling and should not be taken off until time to use the stock, as this layer of fat acts as a preservative by excluding the air. In warm weather soup stock may sour if kept for more than 24 hours. If necessary to keep longer than 24 hours the stock should be sterilized by being brought to a boil at intervals of 24 hours or less. Stock can be used as the base for either gravies or soups and to enrich many dishes, such as hash, meat loaf, etc.

c. Soups have an important place in the menu. In addition to their food value they stimulate the flow of digestive juices, and this aids digestion. Soup should always be served very hot.

d. How made.—(1) Most soups are made by first making a stock. This stock is the base of the soup. It gives strength and flavor. Before making the soup the stock is allowed to cool. This results in the fat rising to the top and hardening so that it can be removed easily. It should be removed to prevent the soup being greasy. To the stock the cook adds mixed vegetables if a vegetable soup is desired, or beans if bean soup is desired, etc. Each soup should be well seasoned with salt, pepper, and other spices such as bay leaves, marjoram, etc. Meat may be added to many soups, if desired.

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(2) Some soups are made without stock. These are usually cream soups (cream of cabbage, cream of celery, etc.). However, stock may be used as the base of cream soups if desired, for the added flavor and strength it gives.

e. Kinds.—(1) *Bouillon.*—See paragraph 88.

(2) *Consomme.*—See paragraph 88.

(3) *Thin soups* like bouillon and consomme are not often served in Army messes as most soldiers prefer a thick soup; however, bouillon or consomme, if served occasionally, is acceptable and gives variety.

(4) *Cream soups* are made by boiling vegetables (as cabbage, celery, tomatoes, etc.) in water or stock, with seasoning, until the vegetables are tender, then thickening with a batter made from flour and fat and adding milk just before serving. Use of an acid vegetable (as tomatoes) sometimes causes the milk to curdle. This can be prevented by adding a pinch of soda (or about 1 teaspoonful for 100 men). If too much soda is added, the soup will have a disagreeable soda taste. Cream soups include cream of asparagus, cabbage, celery, and tomato.

(5) *Purees* are made from vegetables (or fish) which are cooked in stock until very tender and then forced through a colander or sieve to make a mush, which is then put back into the stock. A batter of flour and fat is added to thicken the soup, which is then allowed to simmer about 1 hour before serving. Milk may be added if desired. Purees include puree of beans, carrots, green peas, lima beans, potato, tomato, etc.

(6) *Oyster stew* (sometimes called oyster soup) is made by adding flour to the liquor drained from the oysters, to make a thin batter, which is added to the soup stock for thickening and flavor. The oysters are added just before serving. The stew is then seasoned and boiled for 5 minutes. Milk may be used if desired, and improves the stew.

(7) *Chowders* are soups usually made from fish or clams, although corn or potatoes are occasionally used instead. Vegetables and diced bacon are usually added. The vegetables and bacon may be boiled in stock with the fish or clams, etc., until tender; or, when onions and bacon are included, they may be browned in a frying pan before being added. Chowders are usually thickened with a batter of flour and melted fat. Milk is often added just before serving. Chowders should be well seasoned. They include clam, codfish (or other fish), corn, and potato chowders.

(8) *Meat soups* are made by simmering meats (usually beef) or poultry (usually chicken) until tender, then dicing the meat and adding to stock. Usually rice is added.

(9) *Barley soups* are made by simmering pearled barley in stock or water. Vegetables and bacon or other meats may be added if desired.

109. Gravy, cooking.—*a.* (1) Gravy is the juices (drippings) which escape from meat while being cooked, to which flour and cold water (or cold milk or beef stock) are usually added. Sometimes the clear drippings are served without the addition of any other ingredient; such a gravy is called "au jus", or natural gravy, and is served with a rib or loin roast of beef. The white sauce made from milk, flour, and butter (or vegetable shortening instead of butter) is often called gravy, country style, or cream gravy, but is really a sauce. The term "gravy" is properly applied only when the base is meat drippings.

(2) *Brown gravy.*—The brown color is obtained by heating, after the flour has been added, until the desired degree of brown color is obtained. Care

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must be used to prevent scorching as this will fill the gravy with black specks. If the meat has been seared, very little heating is necessary to get a brown gravy. On the other hand, if a light-brown gravy is desired as when served with pork chops, the cook must be careful to avoid browning the gravy by too much heating after adding the flour.

b. Rules for making.—(1) Gravy should be prepared in the pan in which the meat has been cooked. Some of the albuminous substances escape from the meat in the process of cooking and settle on the bottom of the pan. These add a flavor to the gravy that is not obtained if the drippings are drained into another pan and the gravy made in the latter. To the drippings escaping from the meat should be added flour in one of two ways:

(*a*) By sprinkling the flour into the drippings while being stirred and then adding cold water, cold milk, or beef stock, or

(*b*) By stirring into the drippings a paste made of flour and cold water.

In either case the quantity of flour and liquid added to the drippings is regulated to make a gravy of proper consistency. Where the meat cooked is very fat, excess drippings should be drained from the pan before the gravy is made. During preparation the gravy should be frequently stirred with a wire whip in order to loosen the particles from the bottom of the pan. When several pans are used to roast the meat, the drippings may be poured into one pan and the gravy made in this pan. In this case the meat particles should be loosened before pouring the drippings out of the excess pans.

(2) It is an easy matter to prevent greasy gravy, as it is merely necessary to use sufficient flour to absorb all the drippings. This may frequently result in more gravy than is required; however, it is always good practice to serve liberal portions of gravy. When the quantity of drippings is insufficient, beef stock or rendered suet may be added. With a little experience the cook learns to gauge the necessary quantity of drippings. A good general rule is, to each quart of drippings add 2 pounds of flour and 3 gallons of beef stock or water. This makes enough gravy for 100 men. (See recipe 133.)

(3) Prevention of lumpiness in gravy is more difficult. It is better for the inexperienced cook to add the flour direct to the drippings instead of making a paste as the latter method is more apt to produce lumpiness; however, some cooks prefer to make a paste of the flour and part of the water (or milk or stock) and add this paste to the drippings. If the finished gravy is lumpy this may be corrected by rubbing or straining through a sieve or colander.

(4) If too much water or milk or stock has been added, resulting in a gravy too thin, it should be thickened by boiling down, as the addition of flour may result in lumpiness.

(5) The use of beef stock is not essential; however, it does add richness when used instead of water. It will darken the gravy and therefore must be used sparingly, or not at all, if a very light-colored gravy is desired.

110. Fish, cooking.—*a.* Fresh fish is a very perishable food, and care must be taken to see that it is firm and cold when received, and that it is not held any length of time. Unless perfectly fresh and thoroughly cooked, it is very indigestible and sometimes poisonous.

b. The principles of cooking fish are much the same as for meats, except that higher temperatures are used. Fish may be baked, broiled, fried, or used in soups or salads. When broiled or fried, it should be salted or seasoned first and then well seared at the start. Salt fish should be soaked over night in

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fresh, cold water, to take out some of the salt before cooking. Broiling and baking are the best methods of preparation. Small pan fish and fillets of large white dry fish are good when fried.

c. All varieties of fish need an accompaniment of starchy foods, like bread or potatoes, and white fish need, in addition, to be cooked with butter or fat to make them desirable as food.

111. Eggs, cooking.—Cooking changes eggs from a liquid to a solid form, making them easily handled, and increasing their palatability. It does not increase their digestibility. Boiling of eggs should be either very short (not over 4 minutes) or very long (30 minutes). In the first case we obtain a soft-boiled egg in which very little coagulation (hardening) of the albumen has taken place. If an egg is to be hard-boiled, it should be cooked slowly and thoroughly, so that the protein is completely coagulated. Eggs may be poached, fried, scrambled, or baked. They are also used to a large extent as ingredients of cakes, puddings, sauces, and other mixed foods.

112. Vegetables, cooking.—*a.* The principal methods of cooking vegetables are boiling, steaming, baking, and frying. Boiling is the most common. Overcooking is a common error in boiling and results in loss of color, flavor, vitamins, and food value. The general rule with fresh vegetables is to cook in boiling water as rapidly as possible, in a covered vessel, with just enough water to cover. The most important exceptions to this rule are onions, cabbage, cauliflower, and broccoli, which should be cooked in a considerable excess of water in an uncovered vessel. This will diminish the strong flavor of onions and cut down the development of a disagreeable flavor in the others. Unless a large quantity of water is used at the start it is necessary to add water at least once. Salt raises the boiling point slightly and improves the flavor and color. Cooking is hastened by adding salt, by having the water boiling at the start, by covering the vessel, by having the vegetables in small pieces, and by using plenty of water. All boiled vegetables should be drained as soon as done. White potatoes and rice should be placed on the stove for a few minutes after draining to dry. Steaming is recommended for carrots, potatoes (white and sweet), squash, wax beans, parsnips, beets, spinach, and other tender greens, if the mess is equipped with a steamer or can improvise one.

b. The following suggestions regarding the cooking of various vegetables will be found useful:

(1) Green vegetables should be well covered with water, which should be kept at the boiling point. If the water evaporates, add more *boiling* water. While the addition of a very small quantity of baking soda helps preserve the green color, its use is not recommended, as it destroys vitamins.

(2) Dry beans are prepared best by first soaking, then cooking for a long time at a temperature below the boiling point. Boiling or baking at a temperature above 200° F. makes the skins tough and the interiors crumbly.

(3) Beets keep their color best when not pared or cut up previous to cooking. They are peeled after cooking and may be cut into halves or quarters, sliced or diced.

(4) Cabbage has best flavor and food value when served raw in the form of slaw or salad. If boiled, seasoning in the form of thin-sliced bacon, salt pork, or a ham bone should be placed in cold water, the water gradually brought to a boil, and the cabbage then added slowly so as not to check boiling. Left-over boiled cabbage may be creamed or fried with bacon.

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(5) Canned vegetables have been sufficiently cooked during the canning process. All they require is a little heat and seasoning to make them palatable. They should not be boiled or cooked for a long time as this destroys vitamins.

(6) The best method of frying onions is in bacon drippings in a shallow covered pan until browned. Onions may also be French fried in deep fat or they may be boiled and then served creamed or buttered. Boil only long enough to make the onions tender.

(7) (*a*) Potatoes are the most generally used vegetable and are cooked in a variety of ways. When baked or boiled with their skins on there is little waste as the skins can be pulled or stripped off as soon as cool enough to handle.

(*b*) The time of cooking depends upon the size. They should be cooked until soft as determined by piercing with a fork. If boiled potatoes are allowed to remain on the range in the uncovered boiler for a few minutes after draining, their flavor will be much improved.

(*c*) Boiled potatoes are the starting point for mashed potatoes and potato salad. Potatoes for salad should be boiled with the skins on and not cooked too soft. They should be spread out to cool as they need ventilation while cooling and might sour if placed in a pile or in a utensil. After cooling they should be peeled and cut into neat cubes. Potato salad should be made several hours in advance so as to be thoroughly chilled before serving.

(*d*) New potatoes are best when boiled and are unsuitable for baking. Old potatoes are cooked best with more heat than can be obtained by boiling. Baking or frying in hot deep fat gives the best results. When fried in deep fat the temperature should be just below the smoking point—around 400° F. Care must be taken that too many potatoes are not put in the fat at one time, otherwise the temperature will be lowered to such an extent that the potatoes will absorb fat and become grease-logged; an expensive, unappetizing, and indigestible condition. If cooked at the proper high temperature the surface of the potatoes will be sealed before any fat can penetrate.

(*e*) Potatoes, after peeling, should be kept covered in cold water until cooked, otherwise they will wilt and turn black if exposed to the air for any length of time.

(8) There are several methods of cooking rice (see recipes).

(9) For spinach, steaming or a very short boiling (about 5 minutes) is best. Removing the stems reduces the time required for cooking and makes the spinach more palatable. Spinach should be washed thoroughly before cooking, changing the water several times, to remove all sand and grit.

(10) Summer squash may be cooked whole but is best when cut up, boiled, and mashed. It may be seasoned after cooking with about 10 percent chopped and browned onions and a few slices of bacon diced and fried. Winter squash also may be boiled but is best baked.

(11) Tomatoes may be sliced and served raw. They are very appetizing when baked whole and seasoned with butter, pepper, salt, and a little sugar. Dry bread may be added to stewed tomatoes, in order to absorb some of the juice and add to the bulk; this, however, should not be overdone in utilizing surplus dry bread to the detriment of the real tomato flavor.

113. Salads and dressing.—*a.* Salads are easily prepared, and when well seasoned and attractively served, meet with much favor. A little forethought is necessary as the different ingredients should be prepared some time in advance in order that the salad may be thoroughly chilled before serving.

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b. The following fundamental principles must be observed in the preparation of salads:

(1) They must be served cold.

(2) They should be well seasoned.

(3) They should be attractively served.

c. To accomplish *b* (3) above, almost any bits of sightly, tender vegetables may be placed about the dish or on top of the salad. Sprigs of parsley, lettuce, either whole or shredded, celery, green onions, sliced unpeeled radishes, diamond or heart-shaped beets, sliced pickles or lemons, shredded cabbage or minced pickles shaken over the salad add to the appearance and nutritive value.

d. Any vegetable may be used in salads, either alone or in combination with other vegetables. Lettuce, radishes, and onions may be used in several combinations. Cabbage, shredded fine and soaked in cold water for 2 hours, makes a satisfactory salad when seasoned. Stringless beans or peas that have been cooked and cooled may be used alone or in combination with other vegetables. An excellent salad may be made of beets, either alone or, preferably, combined with other vegetables. The beets should be cooked, then diced and allowed to stand in vinegar for an hour. Potatoes are frequently used in salads, either as the main ingredient or as a filler in meat, fish, or vegetable salads. Cold cooked carrots or grated raw carrots are a palatable ingredient.

e. When meat salads are served to troops, a vegetable filler should be added to diminish the cost and improve the flavor. Thus, when chicken salad is made, one-half boneless chicken and one-half diced celery or other green vegetables should be used. The cost of chicken salad can be reduced by substituting about 25 percent of veal or pork for an equal quantity of chicken; that is, the meat used is 75 percent chicken and 25 percent veal or pork (or both). When this is done, the veal or pork should be cooked with the chicken as it takes up the chicken flavor. Turkey, tongue, or lean beef cut fine may be used for salad. All meat must be cooked until well done before using in salad. Fat meat is undesirable as the dressing usually contains olive or cottonseed oil in such quantities that other fats are unnecessary.

f. Almost any kind of fish, fresh or canned, may be used in salad. When fresh, large fish are preferred on account of being more easily boned. The fresh fish should be boned, either before or after cooking, cooked until done, and the flesh mixed with one-third to one-half vegetables.

g. Cold hard-boiled eggs, olives, onions, or pickles, minced or sliced, when mixed in a salad, spread over it, or used as a garnish, add to the appearance, flavor, and nutritive value.

h. Salads made by placing various vegetables or fruits, whole, chopped, or shredded in gelatin are popular. They have a pleasing appearance and flavor. (See par. 49.)

114. Cereals, cooking (oatmeal, cornmeal, etc.).—Bring the water to a boil, add salt, and then add the cereal slowly to the boiling water, while stirring or whipping. Boil for 5 to 20 minutes, according to the cereal, and then allow to simmer for the prescribed time. (See recipes.) A double boiler should be used, when practicable. If oatmeal is served where sugar is not placed on the tables, sugar should be added with the salt. Cold cooked cereal may be sliced, rolled in flour batter, and fried. An unsweetened cereal is better for this purpose.

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115. Bread, baking.—*a.* The operation of bakeries and detailed instructions on bread making are contained in TM 2100–151. Every cook should know how to make good bread, and no mess is complete without a good pastry cook. This manual covers those forms of breads which are not ordinarily made in the post bakery, as biscuits, corn bread, sweet doughs, etc. Breads are of two general classes: Unfermented and fermented.

(1) *Unfermented breads* are made without yeast, generally being leavened with baking powder. They include baking-powder biscuits, griddlecakes, corn bread, etc. In making these products, the dry ingredients, including flour or meal, salt, sugar, and baking powder, are mixed together and then made into a batter or dough with water or milk. Other ingredients, including eggs or molasses, are sometimes used. The batter or dough should be kept cool to slow the action of the baking powder until ready for cooking. To save time a hot-cake batter may be made several hours ahead in which case the baking powder is not added until just before cooking. If batter for breakfast is made the previous night, it may be set with yeast and the baking powder omitted. In this case it should be kept in the refrigerator to avoid souring.

(2) *Fermented or yeast bread* is leavened by the gas formed by yeast. The yeast also acts upon the gluten and starch, making them more readily digestible, and gives a distinctive flavor not present in unleavened breads. There are two principal types of yeast bread: *Plain doughs*, made from flour, salt, water, and shortening, and a small quantity of sugar; and *sweet doughs* which contain more sugar, and also may contain eggs, milk, spices, and fruits. The former are mainly used for bread in loaves, while the latter are the basis of rolls, buns, coffee cake, etc. (See recipe 277.)

b. Bread making.—(1) *Use of yeast.*—When available, compressed yeast is the most convenient and satisfactory form to use. In the field or at places remote from a supply of compressed yeast, it is generally necessary to use dried or liquid yeast or to confine baking to unfermented products. Dried yeast cannot be used immediately, but must be given a start by using it to prepare a liquid yeast or by making a sponge (see (2) below). This requires about 10 hours.

(2) *Methods.*—There are two general methods of using yeast either of which may be used in making both plain and sweet dough breads.

(*a*) *Straight dough process.*—All of the ingredients are mixed into the batch at once. This method is simpler, quicker in total time required, and retains more of the true wheat flavor.

(*b*) *Sponge and dough process.*—The yeast and a part of the flour are mixed with water, set as a sponge, and allowed to ferment, the balance of the flour and other ingredients being added after the sponge becomes ripe. Although the total time required is longer than with the straight dough it is frequently more convenient as the sponge can be set over night. Several types of bread may be made from the same sponge. The bread produced has a better grain and color than straight dough bread. Either method produces good bread, and the choice of method is largely governed by convenience and efficiency of operation in the kitchen.

116. Cake, general.—*a.* Cake, as distinguished from bread, is a sweet-dough product, prepared without yeast. A raised cake, prepared with yeast, is really a variety of sweet-dough bread. The flavor of cakes is that of a blend of the various ingredients, including flavoring extracts, spices, etc. The basic ingredients of cakes are flour, sugar, salt, eggs, fat, baking powder, and milk or

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water. To these may be added flavors, spices, fruits, and other ingredients. For best results, the ingredients for cakes should be of high quality. When possible, use pastry flour (soft-wheat flour). Butter is the most desirable fat, and when it is used the proportion of salt in the formula may be decreased. Next to butter is lard substitute, especially vegetable shortening. Pure lard is not so desirable for cakes as it may impart a characteristic lard flavor. The eggs should be sweet and sound. The sugar should be fine; if coarse it should be rolled fine. The Army cook will not always have such materials, but a good cook can make good cake with ordinary materials.

b. The usual procedure is to cream the fat and sugar, add eggs and flavoring extract, and stir or beat for about 10 minutes; sift in the mixed flour, salt, and baking powder and then add sufficient milk or water to make a medium stiff batter. A better texture is obtained by separating the egg yolks from the whites and adding the beaten whites at the end of the mixing process.

117. Cakes, kinds.—*a.* While the large number of different kinds of cakes called by many different names might appear confusing to a beginner in cooking, the subject can be readily understood if it is realized that all cakes may be divided into two general classes, cakes containing fat and cakes without fat, and that within these two classes the main difference is in ingredients. Thus, cakes containing fat include plain cake, spice cake, chocolate cake, white cake, gingerbread, fruit cake, etc. Plain cake is made from a basic formula consisting of sugar, fat, salt, whole eggs, baking powder, flavoring extract, flour, and milk or water. Nearly all other cakes are built up from the basic formula by addition of other ingredients. For example, spice cake is made from the basic formula with the addition of cloves, cinnamon, allspice, and nutmeg. Chocolate cake is made from the basic formula plus cocoa or melted chocolate. Gingerbread has ginger and sometimes molasses and soda added. Cakes containing fat usually include baking powder, but cakes made without fat usually do not, lightness being obtained by beating the eggs before adding to the batter. The principal cakes which contain no fat are angel-food cake, sponge cake, and lady-fingers. Cream of tartar is usually added to these cakes, both to whiten and to lighten them.

b. Cakes often take their names from added ingredients or fillings, or from the method of making; thus orange cake may be made with orange juice as part of the liquid in the batter and an orange filling; fruit cake contains various fruits; marble cake is made by mixing different colored batters. It is not necessary in the Army mess to make a wide variety of cakes, and the inexperienced cook should not attempt it; however, as he gains experience he can add to the attractiveness of meals by learning to make new kinds of cake. All that is necessary is to follow the recipe carefully.

c. Cakes are made in two general forms:

(1) Loaf or layer cakes baked in bake pans.

(2) Cup cakes or muffins baked in muffin tins.

Cakes are also made in smaller forms such as cookies and snaps.

d. Muffin batters may be more fluid than those for loaf and layer cakes and require less manipulation. The dry and liquid ingredients are mixed separately and then combined. Quick handling after mixing gives the best results.

118. Cakes, baking.—*a. General.*—Cakes are baked in a medium oven (see par. 28). The temperature should be about 300° F. until the cake has doubled in volume, after which the oven should be raised to a temperature between 350° and 375° F. to complete the baking. When done, a cake shrinks slightly from

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the sides of the pan and is not dented in the center when touched lightly with the finger. When a cake is done, a *clean* toothpick or straw stuck into the center and pulled out will come out clean without any particles of dough sticking to it.

b. Removing cakes from pans.—(1) Inexperienced cooks frequently have trouble in removing cakes from the pans after baking. It is a good general rule to grease the inside of the pan lightly and then dust it with flour, shaking out the excess flour. This fat-flour coating gives the cake a smooth surface, which is desirable if the cake is to be iced, and insures easy removal from the pan after baking. An exception to this rule is that paper is used to line pans used for baking fruit cake, spice cake, and all cakes baked in loaf form or at relatively low temperatures. Ordinary brown wrapping paper is satisfactory.

(2) (*a*) In general it is possible to remove cakes from the pans immediately after baking if the pan has been greased or lined with paper. However, a cake just out of the oven is hot and very tender and breaks easily. Therefore, it is generally best to permit the cake to cool for a few minutes before attempting to remove it from the pan. There are some exceptions to this general rule. Jelly roll must be removed from the pan immediately after baking, as it must be rolled while still hot and tender.

(*b*) If the cake pans have been lined with paper, the cakes will come out readily and without breaking. The cake should be removed from the pans while hot and the paper immediately pulled away from the cake. If the cook waits until the cake is cool it will be difficult to remove the paper without tearing the cake.

(*c*) If the cake pans have not been greased or if not lined with paper, it is necessary to allow the cake to cool before attempting to remove it from the pan. Angel-food cake is the cake most frequently handled by this procedure. The pans should be inverted while the cake is cooling so that the cake will pull away from the pan by its own weight.

(*d*) If a cloth which has been wet in hot water is wrapped around the outside of the cake pan for a few minutes, this will reduce any tendency for the cake to stick to the pan.

(*e*) Many cooks believe that best results are obtained in removing cakes from the pans if the pan is first greased and then dusted on sides and bottom with flour.

119. Pies, baking.—A pie is a combination of two very different food products—the crust and the filling.

a. Pie crust.—The handling of a pie dough differs considerably from that of a bread dough. A high proportion of fat is used, and the dough is made up quickly, with as little handling as possible. The materials should be kept cold. A good proportion by weight is half as much fat as flour, and half as much water as fat. The old-fashioned home-made pie crust has a rough surface and flaky texture obtained by mixing all of the fat and all of the flour lightly. Such a mix has free fat lumps present which cause flakiness. A flaky crust is difficult to cut neatly. Factory pies have a short and mealy crust obtained by thorough mixture of the fat and flour. These cut nicely but lack the attractive appearance of the flaky crusts. For Army purposes the best crust is a short-flaky type, being a compromise between the first two. This has the flaky effect which cuts easily. This quality is obtained by first thoroughly mixing all of the flour with one-half of the fat and then lightly mixing in the remainder of the fat. The first mixing obtains a collection of fat particles covered with

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flour, which gives shortness. The second mixing introduces numerous small free fat lumps which cause flakiness. Just enough water should be added to this mixture to moisten the flour particles. The water should be distributed evenly and the mass mixed gently to a dough-ball which is easy to handle, neither sticky nor crumbly. If too much water is used, it will cause the crust to shrink while baking; however, while this detracts slightly from the appearance of the pie it does no great harm. On the other hand, if too little water is used the crust dough is so stiff that it is difficult to roll and handle and quite likely to break or tear while being lifted from the rolling board to the pie tin. With experience the cook quickly learns to use sufficient water to make a crust which is easily handled. Use of sufficient water to make a sticky or slack dough must be avoided as this makes a tough pie crust. The dough is rolled into a uniform sheet with as little dusting flour as possible and fitted into the pans.

b. Kinds of pies.—Pies usually take their names from the filling contained, as apple, peach, custard, pumpkin, etc. There are many different fillings. They may be roughly classed as follows:

Fruit fillings, consisting of any kind of fruit, usually alone, but sometimes combined with one or more other fruits. This class is called fruit pies. Examples: apple, cherry, rhubarb.

Soft filling (see (2) below).—Examples: pumpkin, custard, lemon cream.

(1) *Fruit pies.*—(*a*) *How made.*—Fruit-filled pies should be made with a top crust as this is the more common practice and they are probably more pleasing made in this way.

(*b*) *Composition of filling.*

1. The fruit used for filling may be fresh, canned, or dried; of desirability in the order named. Common fruit pies are apple, apricot, berry (all kinds), cherry, peach, mince, raisin, and rhubarb.

2. The fruit filling is usually sweetened with sugar. Spices, usually nutmeg and cinnamon, are added to apple pies and may be added to other fruit fillings but are not usually added to berry, cherry, raisin, or rhubarb pies. A thickener or binder is usually added to fillings made from very juicy fruits.

3. (a) Fruit fillings which are very juicy, especially berries and cherries, may make a pie which is difficult to cut and serve neatly as the filling may run out when the cut pieces of pie are lifted from the pie tin to the plate; or, it may be impossible to lift the pieces of pie without breaking them. To overcome this, a starchy thickener, sometimes called a binder, is added to the filling to give it solidity. Starch, under the influence of moisture and heat, swells and becomes a pasty, gelatinous mass, of great water-absorbing power. The ordinary thickeners used in the Army mess are cornstarch, wheat flour, and tapioca. Tapioca is a form of starch. (See par. 75.) While satisfactory results can be secured with cornstarch or wheat flour, the best thickener is tapioca, either in granulated or flour form. The granulated form of tapioca is often called quick tapioca. Cornstarch and wheat flour, if too much is used, may impart their flavor to the pie. They may also impart a whitish color to the filling. Tapioca is less likely to do this. However, cornstarch or wheat flour is often used in preference to tapioca

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for the reason that the tapioca found in Army messes is the pearl type, which requires soaking for about 12 hours so that it will soften and not be visible in the pie. If this long soak is not given, the pearls of tapioca may be visible as small white globes after the pie is baked. Therefore, when using pearl tapioca it is usually necessary to start preparing the fruit filler about 12 hours in advance. On the other hand, cornstarch, wheat flour, or tapioca in granulated or flour form may be mixed and cooked with the juice of the filling in 30 minutes.

(b) Any fruit filling which is sufficiently juicy to require a thickener will furnish sufficient juice in which to cook the thickener. Drain off the juice. If pearl tapioca is used, this must be done about 12 hours before the pies are to be made. If cornstarch, wheat flour, or tapioca in granulated or flake form is used, the juice should be drained from the filling before starting to make the pie crust, so that the thickener and juice may be cooked together while the crust is being made. Heat the juice (preferably in a double boiler), add the thickener, and simmer about 30 minutes. Great care must be used to avoid lumpiness. When using cornstarch or wheat flour, the best method is first to make a thick paste with the thickener and a little of the juice and then stir this paste into all the juice. When using tapioca in granulated or flour form, it should be dropped slowly into the hot water and whipped vigorously with a wire whip until all the tapioca has been added. Stir frequently while simmering.

(c) Some cooks, especially when pressed for time, add cornstarch or wheat flour directly to the filling while pouring it into the pie crust. Experienced cooks may do this successfully, but those with less experience frequently find that white patches appear in the pie after baking, especially if flour has been used. Often this is due to sprinkling the flour on top of the filling (just under the top crust). When adding cornstarch or wheat flour directly to a pie, it is best to first pour in about half the filling, then sprinkle in a layer of thickener, then add remainder of filling. Granulated or flour tapioca is less likely to cause white patches.

(d) Great care must be used to avoid adding too much thickener to pie filling. If too much is used, the filling may be so thickened as to be gummy or rubbery. In deciding upon the quantity of thickener to be used, remember that acid fruit juices cause starch paste to liquify and become thin; therefore slightly more thickener should be used in such fillings as strawberry, tart apple, or rhubarb, etc., than in a nonacid filling, as peach. A good general rule is one fourth of a standard measuring cup (about 1 ounce) of thickener to each quart of juice. With a little experience the cook will soon learn to regulate the quantity of thickener.

(e) After the thickener and juice are cooked together, mix them with with the fruit and then add sugar and spices, if the latter are used, to taste.

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(c) *Handling and baking.*

1. Fruit fillings usually are put into an unbaked (raw) lower crust and covered with a raw upper crust before being put into the oven. After the lower crust is rolled out on the board or table, fold it over once. This makes easier lifting and placing in the pie tin without tearing. Press the crust well down into the corner of the tin and allow an overlap of about one half inch all around the outer edge of the tin. Then crimp or press the crust down on this outer edge. Puncture the lower crust with a fork, especially around the corner of the tin. This allows air to escape and prevents puffing of the lower crust when baking. This should also be done when baking unfilled pie shells. Put in the filling. Then moisten the outer edge of the lower crust. This will cause the outer edges of the lower and upper crusts to stick together. Then add the upper crust. In the upper crust cut several slashes about 1 inch long, or prick it in a number of places with a fork. This is to allow escape of steam while baking. The upper crust is sealed to the lower by crimping the edges with a fork. After the top crust is on, hold the pie plate on one hand and trim off all surplus dough by passing a knife around the edge of the plate. Use a sharp knife.
2. In general, all pies filled into a raw crust are placed in a hot oven (450° to 500° F.—8 counts) in order to bake the lower crust before the filling has had time to soak into it. After a few minutes the temperature should be reduced to that called for in the recipe for the kind of pie being baked. Baked pie shells should be baked in a quick oven (400–450° F.—9 to 12 counts) until they feel firm and dry and the edge of the shell is an even golden brown.
3. The usual practice is to pour soft fillings for pumpkin, squash, and custard pies into an unbaked (raw) crust and bake both together. This gives no trouble in the case of pumpkin and squash but may give trouble with custard pie. If the temperature of the oven is high the custard filling will be tough and have a tendency to weep; if it is low, the filling will soak into the crust and make it soggy. Therefore, many cooks prefer to first cook a custard filling and then pour it into a baked crust (shell). Then the baking required to finish the filling can be done at a temperature which will not injure it.
4. Some cooks prefer to use baked pie crusts (shells) for all soft fillings; others prefer unbaked crusts. The usual practice is to use baked crusts, although these, being dry, tend to absorb liquid from the filling and become soggy.

(2) *Soft fillings.*—(a) *Composition.*

1. *Custard* pie filling consists of milk, eggs, sugar, salt, nutmeg, and vanilla. To cut down the cost, cornstarch is sometimes used and the number of eggs reduced, but the resulting product is less desirable.
2. *Cream* pie fillings consist of flour or cornstarch, sugar, milk, eggs, flavoring (extract or chocolate, lemon juice, etc.), and sometimes fruit, as bananas. Excessive use of flour or cornstarch reduces quality. The use of artificially prepared pie fillings should be avoided. They are expensive and make inferior pies.

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3. Pumpkin or squash pie filling consists of pumpkin or squash, eggs, sugar, salt, milk, and spices. It should be well sweetened and seasoned.

(*b*) *Used in single-crust pies.*—Soft fillings are usually used in pies having no top crust. Meringue (see recipe 254) is often added.

(*c*) *Handling and baking.*—Soft fillings nearly always are given preliminary cooking before being poured into the crust. This preliminary cooking may be for the purpose of cooking out excess water, as for pumpkin and squash, or of cooking the filling until it is stiff and smooth, as for banana cream, lemon, etc. The pie is placed in the oven and baked long enough to set the filling so that it is firm, or to brown the top, especially when meringue is added.

c. Defects of pies.—(1) *In the crust.*—Sticking to pans is caused by moisture from wet pans or from leaking of filler. Shrinking is generally caused by toughness due to too much water, too little shortening, or overworking. Too-high oven temperature tends to increase shrinking. Raw spots on pie bottoms may be due to poor bottom heat in the oven, to dented pans, or to improper mixing or rolling of the dough.

(2) *In the filling.*—Thinning of starch-thickened fillings of acid nature as lemon is caused by too slow cooling. Settling or sediment in custard pies is due to insufficient eggs or excess starch. Soaking of bottom crusts may be due to—

(*a*) Underbaking.
(*b*) Fillings too soft.
(*c*) Too much sugar in dough.
(*d*) Differences in flour.
(*e*) Sweating in the pan.

Boiling over occurs with some fillings when subjected to too high temperatures before the starch has gelatinized.

120. Other desserts.—Only appetizing and palatable desserts should be served in the Army mess. It is better to use plain canned fruit for dessert than a dessert like plain cornstarch pudding. It is possible to serve a large variety of desserts, many of them easily made; therefore, if the cook be inexperienced it is better to utilize easily prepared desserts until the more difficult ones can be prepared in an attractive manner.

a. Puddings make one of the most economical desserts. They can be made and served so as to be very appetizing. They should be fairly rich. Bread pudding is economical because it may be made from left-over or dry bread, but there should be liberal additions of eggs, milk, and fruit, and it should be served with a well-flavored sauce. Tapioca pudding should often have a liberal addition of fruit and should always be well flavored. Dried fruits, including any left-over dried fruit, may be utilized to advantage in these puddings. Rice pudding should contain plenty of eggs, milk, and raisins or currants.

b. Plain gelatin should not be served as such. It should be colored with fruit juices, and whole or cut fruits added, or vegetables added to make a salad. Almost any kind of fruit or vegetable may be used. Using gelatin in this way is much more economical than the use of the various prepared gelatin desserts which have been flavored and colored by the manufacturer and are generally sold in small packages.

c. Shortcakes may be made with baking powder biscuits covered with crushed fruits, or sponge cake may be used instead of biscuits. If sponge cake is used part of the fruit juice should be drained off; otherwise the sponge cake

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will be juice-soaked and unattractive. While the addition of whipped cream is desirable, it is high in cost and not essential.

d. Custards are made with a base of milk, eggs, sugar, and seasoning, and may have various fruits added. A moderate temperature must be used to prevent curdling of the milk. Should the custard appear to be curdling, place the cooking container in cold water and beat smooth. To determine when custard is done dip a silver knife in cold water and insert in center of custard. If the knife comes out clean the custard is done; if coated, longer cooking is necessary. Variations in custard may be made by adding caramelized sugar, fruit pulp, coffee, chocolate, etc.

e. Fruit sauces, such as apple sauce, rhubarb sauce, etc., may be improved by combination with other fruits, for example, adding pineapple juice or crushed pineapple to rhubarb sauce makes a delicious combination. The addition of a small amount of cinnamon-flavored hard candy to apple sauce is an improvement. Many combinations are possible.

f. Baked apples and baked bananas should be served occasionally as dessert. The addition of a small quantity of juice of other fruits improves the flavor.

g. Dried fruits.—(1) It is thought by some that dried fruits are not popular and that many soldiers will not eat them. When this occurs, it is due either to serving dried fruits too often or because they are poorly prepared. It is a fact that dried fruits, skillfully prepared, and cooked and served in a variety of ways, are popular if not served too often.

(2) There are many different ways in which dried fruits can be served. Some of these are—

(*a*) Stewed as a single fruit, or in combination with other dried or fresh fruits.

(*b*) As fillings for pies, cobblers, fruit rolls, etc.

(*c*) Made into jam or fruit butter.

(*d*) Cut or ground and worked into sweet dough products.

(*e*) Cooked and mashed for toppings for sweet rolls.

(*f*) In desserts, as prune whip, etc.

(*g*) In fruit cup.

(*h*) In fruit salad.

(3) When dried fruits are served stewed, water and sugar are added to form a sirup. The sirup should have the same flavor as the fruit. When dried fruits are placed on the table they should be tender. To obtain these results it is necessary to allow the fruit to soak and cook in the sirup sufficiently long to become tender and for the sirup to take up the flavor of the fruit. This can be done by soaking over night and simmering for about 1 hour the following morning, or by first simmering and then allowing to soak over night.

(4) Dried fruits, especially prunes and figs, sometimes become sugared in storage. This means that the natural sugar of the fruit works out through the skin and shows as a white bloom. This is harmless, but may be mistaken for mold; however, mold is always in fuzzy, thread form, while the fruit sugar is in crystals.

121. Beverages.—The beverages most used in Army messes are coffee, tea, cocoa, and lemonade. Fruit punches may be served occasionally in hot weather if the cost is moderate.

a. Coffee.—(1) *Rules for making.*—In brewing coffee by any method, the following rules should be strictly observed:

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(*a*) *Keep the supply of roasted coffee in airtight containers.* Exposure to air causes roasted coffee to lose rapidly some of its flavor and strength.

(*b*) *Use ground coffee only once.* Coffee grounds from which coffee has been made should always be thrown away. Never use them the second time. Coffee made from them is sure to have a bitter and unpleasant flavor. This is true even if fresh roasted coffee and old grounds are mixed. To mix fresh coffee and old grounds is a waste, not a saving.

(*c*) *Use fresh boiling water.* The water must be boiling to extract all the desirable flavors from the coffee. It must be fresh. Water which has boiled for a long time has a flat taste which will appear in the coffee.

(*d*) *Regulate preparation of coffee so that it will be ready not more than 10 minutes before serving time.* Once prepared, coffee loses its flavor rapidly and if held more than 30 minutes becomes bitter.

(*e*) *Never make more than enough coffee for one meal.* Warmed-over coffee is bitter and has lost aroma.

(*f*) *Scour the coffee pot.* Unless thoroughly scoured daily, some of the spent grounds and oils of the coffee will stick in the corners of the pot and impart a bitter taste to subsequent brews.

(*g*) *If filter bags are used, they should not be dried, neither should they be washed in hot water.* Hot water cooks in the coffee stains throughout the filter bag and, in subsequent brews, imparts a bitter and off flavor to the coffee. After the bag is rinsed in cold water, submerge it in cool or cold water until time to use it again.

(2) *Coffee for the cooks.*—It is the practice of some cooks to make the coffee for breakfast as soon as the fire is started in the morning in order to have coffee for themselves. This is bad practice. It means that stale and bitter coffee is served at the mess table. Every mess should have a small coffee pot, percolator, or tricolator for the purpose of providing good hot coffee for the kitchen detail, members of the guard, etc., who desire coffee earlier or later than the regular serving time for the organization. In making small quantities, use a level tablespoonful of ground coffee to each cup of water and add one level tablespoonful for the pot.

(3) *Proper quantities.*—One pint of coffee per man is ample for one meal. This is 12½ gallons for 100 men or 2½ gallons for 20 men. For each 20 men use 1 pound of roasted and ground coffee and 2½ gallons of water. Therefore, to find the number of pounds of roasted and ground coffee, divide the number of men to be served by 20. For example, if 80 men are to be served, 4 pounds of coffee are required. To find the number of gallons of water, multiply the number of pounds of ground coffee by 2½. Thus, for 80 men, 4 pounds of ground coffee and 10 gallons of water are required. These proportions of ground coffee and water should be used regardless of the method of preparation—whether boiled, or made in percolators, or tricolator, etc.

(4) *Methods of brewing.*—(*a*) *Boiled coffee.*—Heat fresh water in a separate container until it has just reached the boiling point. Place the ground coffee in a cloth sack, tie the top. Ground coffee expands in water; therefore, leave plenty of room in the sack for this expansion. Place the sack of ground coffee in the coffee pot or boiler and pour the water over it; or, the sack of coffee may be suspended or dropped into the water. Keep hot on the back of the stove; do not permit boiling. The value of a cloth sack is that the grounds can be removed easily as soon as the coffee is brewed. Sometimes a sack may not be available. In this case the ground coffee is placed in the bottom of the

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pot or boiler and the boiling water poured over it; at the end of 10 minutes heating over a slow fire, settle the coffee by the addition of a small quantity of cold water.

(*b*) *Percolated coffee.*—Use either cold or hot water. The use of hot water reduces the length of time required to complete the brew. For quantities in excess of 20 cups the coffee will be ready to serve in 10 minutes after it starts coming over the top of the tube. For smaller quantities 8 minutes is sufficient.

(*c*) *Filtered or drip coffee.*—This is made in a utensil having three compartments, the upper for water, the center for ground coffee, and the lower for the brewed beverage. Filter papers are usually provided to be placed on the bottom of the center compartment before putting in the ground coffee. This type of utensil is sold under various trade names as "Tricolator", "Filtrator", etc. For best results the coffee must be finely ground. Place the filter paper in the bottom of the center compartment, add the ground coffee and cover with the perforated metal cover which is usually provided; then pour in boiling or fresh water. When all the water has filtered through the ground coffee and into the lower compartment, the beverage is ready to serve. Before serving, stir the beverage to equalize strength throughout. Some arrangement must be made to keep the lower compartment hot but not boiling. If of earthenware or glassware, keep it in a pan of hot water until just before serving. If of aluminum or other metal it should be placed on the back of the stove. Do not permit the brewed coffee to boil.

b. Tea.—(1) Tea should be served hot occasionally in lieu of coffee. In the summer months it should be served often as an iced beverage, especially at the noon meal.

(2) Tea should be made in glass or earthenware utensils, if available, as metal utensils give an off flavor and tend to blacken the tea.

(3) One to three ounces of tea to 1 gallon of water should be used in making tea, depending on the quality of the tea and the strength of the beverage desired. Two ounces of tea leaves to 1 gallon of water should make a beverage to suit the average person.

(4) Bring the required quantity of water to a boil. Place the dry tea in a clean cotton bag, tie the top, and drop the bag into the boiling water. Tea expands in water, therefore, leave plenty of room in the bag for this expansion. Allow the bag of tea to remain in the water for 5 or 7 minutes, then remove it. If tea leaves are allowed to remain in the water longer than 7 minutes the tea becomes strong and bitter. Agitate the bag of tea 3 or 4 times during the period it is in the water. Stir the tea just before serving, to equalize strength throughout. If not stirred the tea on the bottom of the container will be stronger than that on top. Unlike coffee, tea may be made several hours before serving, if kept in earthenware or glass containers, as it does not lose its flavor and aroma. If lemons are available, they may be sliced and served with the tea in lieu of milk, for those desiring this.

(5) Tea to be used as an iced drink should be made in concentrated form. Use the total required quantity of tea leaves, and one fifth the required amount of water. Prepare the same as hot tea, but a sufficient time in advance to permit cooling. Just before serving add the remainder of the water, either cold water or chipped ice or a combination of the two, and stir vigorously in order to equalize strength throughout. Added lemon materially improves the flavor.

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c. Cocoa.—(1) Cocoa makes a good beverage, especially for the evening meal. Five ounces of cocoa to one gallon of liquid makes a beverage of average strength. The best results are obtained when the liquid used consists of 75 percent milk and 25 percent water. The quantity of milk may be reduced, with corresponding increase in the quantity of water when it becomes necessary to reduce cost. Cocoa made with water alone lacks palatability and body, and is generally unsatisfactory.

(2) Some cooks make cocoa by placing the ground cocoa in a pot, adding hot water, bringing to a boil, then adding sugar and milk. A better method is first to make a thick paste with the ground cocoa, sugar, and a little hot water. This method prevents lumpiness.

(3) Some cooks prefer to leave out the sugar when making cocoa so that the men may add it at the table according to individual taste. This is a matter of mess management.

122. Ice cream.—Ice cream is probably the most popular dessert. It is especially welcome in hot weather. For economy and good quality, ice cream, frozen custard, and water ices should be made in the mess instead of being purchased. Good ice cream can be made in the mess kitchen at a cost of 25 to 50 percent less than the cost of commercial ice cream. When frozen desserts are served, an inexpensive cake like gingerbread or white cake which costs from a cent to a cent and a half a portion should also be served.

SECTION V

RATIONS

	Paragraph
Ration, defined	123
Rations, to whom issued	124
Rations of U. S. Army	125
Use of rations	126

123. Ration, defined.—A ration is the allowance of food for 1 man for 1 day.

124. Rations, to whom issued.—Each soldier (and certain other military personnel) is authorized by Army Regulations to receive one ration each day he is on active service.

125. Rations of U. S. Army.—*a. Kinds.*—The following rations are provided:

Garrison ration.
Field ration.
Travel ration.
Reserve ration.
Filipino ration.

Each ration is intended for certain conditions of military service, and is made up to suit those conditions. For example, the travel ration consists chiefly of foods which do not require cooking and therefore are convenient for use on railroad trains or where cooking facilities are not available.

b. How issued—ration savings privilege.—The garrison ration is not issued in the form of food. The allowance is in cash; that is, the quartermaster gives each mess a money credit for the money value of the ration and the mess may use this money credit for the purchase of any desired kind of food. For example, if a company mess had a strength of 100 men on July 1 and the value of the ration for July is 30 cents, the quartermaster gives the mess credit for $30. The mess may purchase food from the quartermaster up to a

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value of $30; or if it purchases less than $30 worth, it is entitled to the saving in cash. This is called the ration savings privilege. The cash savings go into the company fund and may be spent at any later date for food. For convenience, the accounts are settled by the quartermaster once a month.

c. Rations in kind.—The field ration, travel ration, and reserve ration are issued in kind; that is, they are issued in the form of food. There is no money credit and no ration savings privilege. The mess draws for each soldier the actual quantity, by weight or measure, of the foods composing the ration.

d. When issued.—(1) The *garrison ration* is allowed to all troops, except Philippine Scouts, in time of peace, except under special conditions, when the field or travel rations may be allowed.

(2) The *field ration* is issued only in time of war or national emergency, and then only when the garrison ration is not used.

(3) The *travel ration* is issued in kind, either in time of peace or war, to troops who are traveling and are separated from cooking facilities. It is not issued to troops who are traveling by marching. Such troops are allowed the garrison ration or the field ration.

(4) The *reserve ration* is for use in campaign when the field ration is not available. It is an article of field equipment, and, except in emergencies, will be consumed only by order of a commissioned officer.

(5) The *Filipino ration* is that prescribed in time of peace for Philippine Scouts.

126. Use of rations.—*a.* The cook is not concerned with the component articles of the garrison ration. The organization commander decides the kinds and quantities of foods to be purchased out of the money allowance. These foods need not be, and usually are not, exactly the same as the components of the garrison ration. The organization uses the money allowance to purchase the foods required to prepare the dishes called for by the menu.

b. As the field ration is issued in kind, the Army cook is directly concerned in its components and substitutive articles which are published in AR 30-2210.

c. Conditions in the field are such that neither the organization commander, the mess sergeant, nor the cook knows in advance which component and which substitutive articles of the field ration will be received each day. Therefore, it may become necessary to combine two or more of the component or substitutive articles in order to make one dish. For example, there might be issued for one day fresh carrots and canned peas, neither in sufficient quantity to serve alone. They may be cooked together. When the field ration is being issued daily, an effort should be made to entirely consume the issue each day in order to avoid holding over any portion.

SECTION VI

KITCHEN MANAGEMENT

	Paragraph
Personal cleanliness of cooks	127
Cooking—definite plan of work	128
Cooking—assembling ingredients and utensils	129
Cooking stoves, ranges, and appliances; directions for use	130
Care of ranges and cooking utensils	131
Service of meals	132

127. Personal cleanliness of cooks.—*a.* It is of great importance that the cook keep himself scrupulously clean and in good physical condition at all times. No one desires to eat food prepared by a cook who is not clean. A cook

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who suffers from any ailment—a cold, or any other sickness—is a possible source of transmission of his ailment to others. If he does not keep himself clean he may transmit disease germs to the food. He must wash his hands frequently, and always after visiting a latrine. He should shave, bathe, and change underwear at least daily, and oftener, if necessary, in warm weather. His outer clothing must be changed as soon as it becomes soiled. Fingernails should be kept trimmed short and free from dirt. Regulation haircuts are comfortable and sanitary and should be procured regularly. Because any illness contracted by a cook or other kitchen personnel may be readily transmitted to the entire command, they should immediately report any symptoms of illness, infection, or contagious disease for medical examination and treatment. The cook must be careful to avoid coughing or sneezing when this might carry germs into the food. All cuts, scalds, or burns, no matter how slight, should be treated immediately to prevent infection.

b. The white caps provided for cooks are not merely for ornament; they are to prevent hair, dandruff, or dust from the cook's hair falling into the food. White caps must be worn at all times when in the kitchen and white caps and coats when serving meals.

128. Cooking—definite plan of work.—By having a definite plan of work a cook can reduce the number of utensils used in preparation of the food and lessen the dishwashing required. A thoughtless cook often leaves a trail of unnecessarily soiled utensils behind him, thereby justly incurring the resentment of the kitchen police. In order to work rapidly and efficiently, and to spare himself and others unnecessary steps, the cook should first thoroughly understand the recipe upon which he is working. He should read the menu for the day and make definite plans for cooking and serving all the dishes and foods called for. Nothing is gained by starting work without a well-laid plan. The use of a little imagination and anticipation will avoid much unnecessary confusion and last-minute rushing. The cook should think of what he has to do, remember how he did it before, and then try to do it a little better than the last time. He should also observe how others do the same things and be alert to adopt any time- or labor-saving methods which he may see others use. Recipes should always be consulted as a guide unless one is sure from long experience that this is not necessary. All ingredients should be accurately weighed and measured in order that uniformity in quantity, volume, and flavor may be assured, and that proper and intelligent corrections or adjustments may be made in preparing better dishes or larger or smaller portions at another time. (See par. 2, sec. I, appendix I.)

129. Cooking—assembling ingredients and utensils.—It is important to have a place for each utensil and to keep it there, clean and ready for use. Articles to be used, including the kitchen utensils and the food being prepared, should be assembled within easy reach of the cook's table or range, in order to save time and steps. For example, when preparing cake batter, many steps and much inconvenience will be saved if the articles required are placed conveniently at hand upon the table on which the work is to be done. Also, the fire in the range should be regulated prior to beginning the mixing. After getting one's hands into the batter there is no time to collect articles and regulate the fire, not to mention the inconvenience and messy operations resulting therefrom. This principle applies to all dishes prepared in the kitchen.

130. Cooking stoves, ranges, and appliances; directions for use.—*a.* Cooks should be thoroughly familiar with their ranges, steam kettles, and other

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cooking appliances; know how to operate them economically; know which parts thereof produce the greatest heat and under what conditions these appliances may be most efficiently operated. For example, the heat surface of the Army range no. 5 may be best used as follows:

0	0	0	0
5	4	3	1
0	0	0	0
5a	4a	3a	2

The no. 1 eye gives off the greatest amount of heat; the no. 2 next, nos. 3, 3a, 4 and 4a next; and nos. 5 and 5a the least. A food to be boiled should be placed on the no. 1 eye. Should it be desired to have the food simmer the utensil must be removed to eye no. 5 or 5a. Tough meat which requires a long, slow process of cooking may be simmered until tender without fear of burning if placed on the no. 5 or 5a eye. For a moderate heat the no. 3, 3a, 4, and 4a eyes can be used to advantage. Stewing requires a gentle heat applied for a long time.

b. Steam cookers, where available, provide an exceptionally rapid means of cooking fresh vegetables in quantities. These cookers are economical of fuel and labor. They produce food of excellent quality, with a natural tasty flavor, and with very small loss of the nourishing properties contained therein, and, in addition, require little or no attention and do not allow foods to scorch or burn. Pressure steam cookers should have an automatic steam cut-off which is controlled by the opening and shutting of the doors, to avoid accidental scalding of personnel. In using electric ranges or electrical appliances of any kind for cooking, care must be taken to prevent damaging the heating elements by rough handling or spilled foods. Any food spilled on this equipment, particularly on the heating elements, should be cleaned up immediately. Mixing machines, chopping and slicing machines, grinders, etc., should be well cleaned immediately after using. All cutting edges should be kept sharp, and all machinery well oiled and free from rust, dirt, and grease.

131. Care of ranges and cooking utensils.—*a. Responsibility of the cook.*—It is part of the duty of cooking to give the proper care to ranges, cooking utensils, and kitchen equipment. To do the best cooking it is essential that this equipment be kept in good condition. Careful observation of the following instructions will insure kitchen equipment being in good condition at all times.

b. Ranges, care of.—(1) *Army range no. 5.*—The Army range no. 5 is the type installed in many company kitchens in permanent barracks.

(*a*) Frequent firing should be made with small amounts of coal instead of using large amounts with longer intervals between firings. This will provide an even heat and will result in a smaller consumption of fuel.

(*b*) Ashes under the firebox should be cleaned out frequently, several times a day if necessary. Grate bars will burn out quickly, that is, become warped and twisted, if ashes under the firebox are allowed to pile high enough to touch the grate bars.

(*c*) The oven should be swept out and the top and outer surfaces of the range and stovepipe rubbed with greasy cloth daily. A greasy cloth applied daily over the entire range keeps it in better condition than stove polish applied once a week.

(*d*) Not less than once each week the range should be thoroughly cleaned out. To do this remove the top and sweep the top of the oven, protecting the casing

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plates. Remove the soot with a scraper through the flue doors. The mantel should be wiped often with a damp cloth and, when necessary, washed with soap and water. This prevents dishes picking up dirt and grease and thus soiling the tables.

(*e*) An intensely hot fire should never be maintained. Such a fire is not necessary for good cooking; on the contrary, it often causes poor cooking, as foods being cooked on top of the range may become scorched and those in the oven scorched or overcooked. An intensely hot fire tends to damage hot water piping and warp the top sections of the range.

(2) *The Army field range.*—See paragraph 135.

(3) *Ranges, electric, care and operation.*—The chief point to consider in using electric ranges is to avoid damage to the heating elements through rough handling and spilling of food on the range or heating elements. Any food spilled should be cleaned off immediately.

(4) *Ranges, gas, care and operation.*—If foods are spilled on the burners of gas ranges, the holes will close up, thus cutting off heat. The burners should be kept clean. If the gas range does not appear to be heating well, the matter should be reported for the attention of a plumber who may be able to effect improvement by adjusting the air supply to the burners.

c. Utensils, cleaning and care of.—(1) *General.*—Tinned utensils, such as boilers, dippers, meat forks, ladles, skimmers, measures, basting spoons, etc., should be cleaned with soap and water, or scoured, if necessary, with fine scouring soap or wood ashes each time after using. They should then be scalded and air-dried (sunned if possible) and hung in a dry place. When tinned utensils become rusted they are unsanitary and should be reported to the mess sergeant. Towels should not be used to dry utensils or dishes if they can be air-dried. Usually the heat of scalding is sufficient to dry dishes but is not always sufficient to dry metal utensils, especially such utensils as egg beaters. If these utensils are placed on a clean stove mantel the heat will dry them.

(2) *Small utensils, care of.*—It should be remembered that unclean utensils, knives, forks, spoons, egg beaters, etc., may impart an unpleasant flavor to any dish in which they are used; also, that germs are in the air everywhere, even in the cleanest kitchen. Therefore, every utensil should be cleaned immediately after use by washing in warm water and then rinsing in scalding water. This rinsing in scalding water will kill germs. It is not necessary to clean (wash) the utensils in scalding water; frequently this is bad practice, as scalding tends to cook the food on the utensils and make it more difficult to remove. Even though utensils have been cleaned before being hung up or put away they should be rinsed or dipped in scalding water before being used to kill germs or remove dust which may be settled on them. Large utensils, as tinned boilers, should be wiped before using.

(3) *Black iron bake pans, care of.*—(*a*) *When received.*—The black iron roasting and baking pans supplied to Army messes should be washed when first received in the mess in warm soapy water to which a little washing soda has been added. In the case of new and unused pans, this is to remove the protective paraffin coating put on by the manufacturer.

(*b*) *"Burning in" newly received pans.*—It should be a routine practice to "burn in" black iron pans when first received by the mess. After being washed and dried, the pans should be thinly and evenly coated with lard or lard substitute. Lard is better, but lard substitute will do. Then the pans are placed in a medium oven (325–400° F.—12 to 16 counts) for 1 hour. This burns in the

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coating of lard and gives a smooth glazed surface, closing up the tiny pores in the metal and preventing rust. This process is often called "bluing" or "rebluing."

(*c*) *Periodical rebluing.*—Daily use in the mess causes the burned-in coating on these pans to wear off, this being indicated by shiny, light-colored areas. When this occurs the pans should be washed, dried, and reblued by the method shown in (*b*) above.

(*d*) *Cleaning.*—Black iron pans must be kept thoroughly clean inside and out. If particles of cooked food or dirt are left on the outside, they may be transferred to other pans when the pans are nested. Particles of cooked food or dirt on the inside of a pan will discolor and impart an unpleasant flavor to any food subsequently cooked or baked in such a pan. Black iron pans should only be scoured when necessary to remove dirt as scouring tends to remove the bluing. Soaking will soften most dirt so that it can be removed by washing in warm soapy water. After washing, scald, air-dry (by heat if possible), and hang separately (not nested).

132. Service of meals.—*a. General.*—Under the direction of the mess sergeant the senior cook on duty is responsible for the service of meals; that is, that foods are ready at the proper time and placed on serving dishes in an attractive manner. It is of little use to exercise great care in cooking a food if it is to be sent to the mess table presenting an unattractive appearance. On the other hand, the plainest foods become appealing when served in an attractive manner. Many men will eat an attractively served plain food which they would not eat if served in an ordinary manner. Therefore, every cook should know how to serve attractively.

b. Placing foods on dishes.—(1) Roast meats, as beef, veal, pork, and lamb, should be of uniform thickness and the slices laid evenly and neatly on the platter. If gravy is spilled on the edges of the platter it should be wiped away.

(2) Soft foods, as mush, mashed potatoes, turnips, etc., should be neatly rounded off, not merely thrown into the dish.

(3) Foods intended to be served hot, as soups, meats, vegetables, beverages, etc., should be actually hot. Nothing is so disappointing as lukewarm soup or coffee. Serving dishes should be kept warm, either by being placed on the range mantel or by other means. Cold foods should be actually cold, and the cook must use foresight to chill them sufficiently in advance of serving to accomplish this. Hot or cold foods should not be placed on the tables until just before the men are seated; other foods may be placed earlier.

(4) Pies and cakes should be neatly cut. Pieces of cake should be neatly arranged on the serving dish without excess loose crumbs.

(5) A little cracked ice added to butter, olives, etc., and to fresh raw vegetables as radishes, green onions, lettuce, celery, sliced tomatoes, etc., before they are sent to the tables makes these foods much more appetizing.

(6) Fresh fruits, as apples, oranges, pears, grapes, bananas, etc., are much more palatable when served chilled, and therefore should be thoroughly chilled before serving. It is economical and good mess practice to halve oranges, apples, and pears before serving, to prevent their being carried from the mess hall, and to encourage the consumption of fresh fruits at the table. A saving can be made in this way, as some men will not eat a whole apple or other fruit; also the freshly cut fruit seems to have a greater appeal to the men. Large bunches of grapes should be cut into smaller bunches.

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c. Garnishing.—(1) *General.*—One of the best ways to make food attractive is by garnishing. The effect of color contrast is very pleasing. For example, a cabbage salad is much more attractive if a few strips of pimento and green pepper are spread over the top of the salad. A little paprika sprinkled over mashed potatoes or potato salad makes them more appetizing and appealing.

(2) Following are some methods of garnishing:

(*a*) Many materials may be used to garnish roast meats. Sprinkle parsley over the meat and arrange a little around the edge of the platter. Add a few slices of fresh tomato, or a few french fried potatoes, or small quantities of green lima beans, diced celery, small whole boiled onions, green peas, sliced green pepper, or cooked carrots and turnips to the serving platter.

(*b*) When liver and bacon are served, instead of placing all the bacon in a separate dish, lay a few strips over the liver.

(*c*) Baked fish, salmon hash, fried oysters, etc., may be garnished with a few crescent-shaped slices of lemon and may also be garnished with a little parsley and a few pieces of french fried potatoes.

(*d*) Soups, stews, and gravies are improved in appearance by sprinkling a little chopped parsley over the surface just before serving.

(*e*) Macaroni and cheese should be sprinkled with paprika.

(*f*) Garnish spinach with sliced hard-boiled eggs.

(*g*) Small slices of cheddar cheese with apple pie are much appreciated.

(*h*) A small quantity of sliced green peppers greatly improves the flavor of stewed tomatoes, especially if cooked with the tomatoes during the last few minutes of cooking.

(*i*) Many types of pudding can be greatly improved in taste and appearance by topping with shredded coconut and canned sour red cherries. Diced pineapple spread over cornstarch or tapioca pudding and then topped with thinly spread coconut improves appearance and adds to flavor.

(3) Following is a list of some of the materials which can be used for garnishing. The quantity required and the cost are small:

Asparagus, in whole spears.
Bacon, fried.
Beans, lima, green, canned or cooked.
Beets, canned or cooked, sliced, diced, or cut into fancy shapes.
Cabbage, shredded.
Cantaloupe and other melons, cut into small balls.
Carrots, cooked, whole, halved, sliced, or cut into fancy shapes.
Cauliflower, small cooked pieces.
Celery, in stalks, sliced, or diced.
Celery leaves.
Cheese, cut or grated, or cream cheese.
Cherries, red or green.
Coconut, shredded.
Cucumbers, sliced or cut into fancy shapes.
Eggs, hard-boiled, sliced.
Endive.
Fruits of all kinds.
Lettuce, leaves or pieces.
Olives.
Onions, mature, small, boiled whole or pickled.
Onions, mature, sliced raw.

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Onions, young, green.
Paprika.
Parsley.
Peas, green, canned or cooked.
Peppers, green, sliced thin.
Pickles, any kind, whole, halved, sliced, or cut into fancy shapes.
Pimentos, cut into strips.
Potatoes, french fried, or mashed and shaped into small balls, or put on serving dishes or individual plates with a pastry bag.
Radishes, whole, cut, or sliced.
Spinach, cooked.
Turnips, cooked, sliced, diced, or in fancy shapes.

SECTION VII

FIELD COOKING

	Paragraph
Field cooking compared with garrison	133
Rolling kitchens	134
Field ranges, installing and handling	135
Fireless cookers, instructions for using	136

133. Field cooking compared with garrison.—*a.* The principles of cooking are the same in garrison or in the field. The chief difference is in the equipment used. Troops in the field cook with the following equipment:

(1) The rolling kitchen.

(2) The field range.

(3) Pack cooking outfits, for cavalry, pack artillery, and Philippine Scouts.

b. Fireless cookers, improvised earth or clay ovens, etc., are frequently used in the field. A cook can prepare good meals over an open fire and with improvised utensils if he applies the principles and rules followed in garrison cooking.

134. Rolling kitchens.—*a.* There are several types of rolling kitchens. Most of them consist essentially of—

(1) A limber, having a driver's seat and compartments for fuel and forage; thermos (marmite) cans for keeping food warm or completing cooking as fireless cookers; detachable boards for use as serving and cutting tables; chests for tools and utensils; bread boxes; cans for coffee, sugar, spices, etc. No cooking is done on the limber except continuation on the fireless cooker principle.

(2) A cooker, consisting essentially of a fire box, over which are set several cooking vessels and, on some types, one or more ovens.

b. (1) The limber and the cooker are separate vehicles, each set on a pair of wheels. The limber is the forward vehicle.

(2) Most rolling kitchens are animal-drawn, but may be used as trailers to motor or animal-drawn vehicles. Unless equipped with ball-bearing axles, a speed of 5 miles per hour should not be exceeded by the rolling kitchen.

c. A rolling kitchen of the type described above will cook for 200 to 300 men and, when stationary, will do any kind of cooking or baking possible on an ordinary kitchen range. Cooking enroute is limited by smoothness of road and road-speed of the kitchen.

d. Rolling kitchens can be removed from wheels and set up on the ground for use in permanent or semipermanent camps, or on railroad cars or trucks.

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e. Most types of rolling kitchens are equipped to burn either wood, coal, or oil. Oil burners are detachable and when oil is not available wood or coal may be used.

f. The cooking vessels or pots on the cooker set down into the fire box so that the bottom half is exposed directly to the heat. On some types of rolling kitchens two of the cook pots are of the double-boiler type for cooking rice, beans, oatmeal, etc., without scorching. The double boilers may be used to braise the less tender cuts of meat. Food may be brought to a boil and then transferred to one of the thermos cans on the limber to finish. With a hot fire, most vegetables, except beans, can be cooked in 30 minutes.

g. The ovens on some types of rolling kitchen are of sufficient size to roast meat and brown potatoes at the same time for 200 or 300 men. They can be used to fry bacon and potatoes, to bake puddings, pastries (pie, cake, etc.), and hot breads, such as baking-powder biscuits or hot rolls. Only the regular oven pans should be used for this purpose. Hot cakes may be fried in the ovens and also on top of the cooker at the same time.

h. The thermos (marmite) cans on the limber can be used for—

(1) Fireless cooking, to complete cooking of foods brought to a boil on the cooker;

(2) Keeping food or beverages warm on the march;

(3) Carrying food to troops;

(4) Placing on the ground to form a serving line;

(5) Carrying reserve water supply.

i. Most types of limbers have bread boxes capable of holding one day's ration of bread for 200 or more men and are equipped with various knives and other kitchen utensils, shovel, axe, bucket, etc.

135. Field ranges, installing and handling.—*a. When used.*—Army field ranges are used by troops in the field when not equipped with rolling kitchens or other cooking equipment.

b. Classification.—There are two types of field ranges—Army field range no. 1 and Army field range no. 2.

(1) *Description, installation, and operation of field range no. 1.*—(*a*) Army field range no. 1, complete, weighs approximately 264 pounds with utensils, and with the addition of the Alamo attachment is designed to cook for 150 men. It consists essentially of two parts—the oven no. 41 and the boiling plate. The boiling plate has three sections, no. 42, and the Alamo attachments, nos. 42–A and 42–B.

(*b*) On the march, field range no. 1 is ordinarily set up by leveling the ground selected and placing the oven no. 41 and boiling plate no. 42 side by side, so that the oven door and the fire-box door will be at the same end. Draw together 42–A and 42–B and secure bar lock. Insert 42 (boiling plate) into 42–A and rest 42–B snugly on the angle iron on the rear of the oven. The oven should not be banked as this would cause the sheet iron along the sides to warp and finally burn through. Sufficient earth, however, should be tamped along the sides and closed end to prevent the passage of gasses beneath, but should not extend above the straps along the sides and under the oven door. (See fig. 13.) If heavy weights, such as large cans of water, are placed on the boiling plate, lay angle irons across the plate so that the weight will come on the walls and not on the center of the plate. This will prevent breaking down the center of the plate and warping.

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(*c*) When used for one day only, a few shovelfuls of earth should be removed from the place to be covered by the boiling plate (see fig. 13) to facilitate firing. The best results are obtained by using short wood, keeping the fire well toward the firing end of the boiling plate; or, if using long sticks and branches, pushing them under the boiling plate as they are consumed.

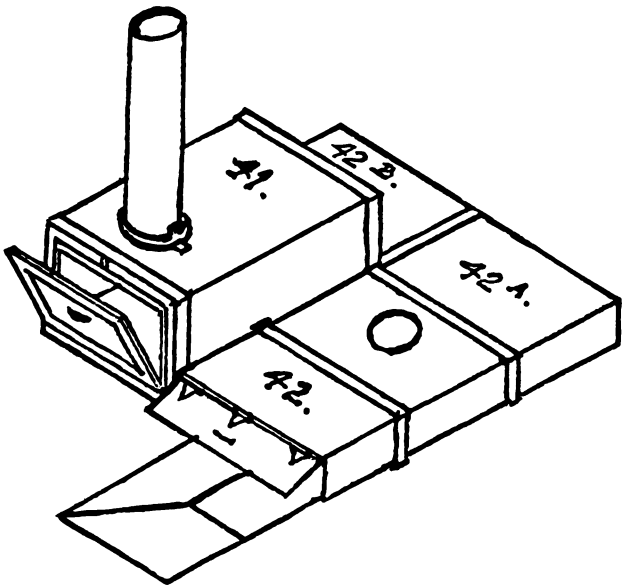

FIGURE 13.—Sketch of Army field range no. 1, with Alamo attachments, assembled for use in the field.

(*d*) If the range is to remain in place for several days, it is best to dig a trench, except in sandy soil, about 18 inches wide by 6 inches deep at the front and the length of the boiling plate, say 6 feet, sloping upward to about 5 inches in depth at the back end. (See fig. 14.)

When installed, the trench should extend under the boiling plate and about 1 foot under the Alamo attachment—just enough to facilitate the draft—and

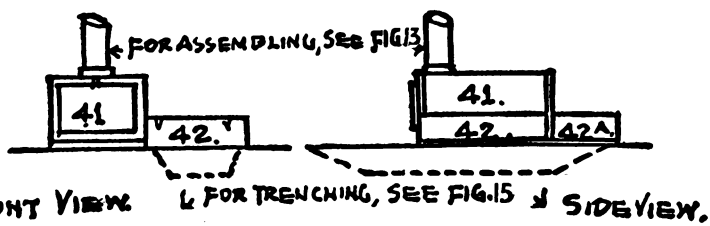

FIGURE 14.—Sketch of range with or without trench.

about 6 inches under the oven. When the range is set up on different ground daily, no difficulty will be experienced in obtaining the proper temperature in the oven, both for top and bottom heat. Whenever it remains for a longer time than 1 day in the same spot the ground will become dried out and hot,

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and it may be necessary to raise the bake pans about 2 inches off the floor of the oven. This can be done easily by the use of angle irons or other means, thereby causing an air space under the bake pans. Never use earth or sand for this purpose as it would cause a hole to burn in the bottom plate of the oven.

(*e*) If the range is to be used for a considerable length of time in one location it should be elevated on a base of bricks or of stones and clay. In this case no trenches are dug under the range. The ground is leveled, and a brick floor may be laid if sufficient bricks are available. Set up the range, temporarily, on the level ground or on the brick floor, and mark the outline of the range. Then remove the range and attachments and construct a wall, 3 bricks high and 8 inches wide on the outline and on the line between the oven and boiling plate. Assemble the range on top of the brick walls. Under the oven place a number of bricks on edge, spaced ¾-inch apart. These hold the heat and improve baking. The spaces (fire channel) inside the brick walls under boiling plate no. 42 and gas chamber under Alamo attachments nos. 42–A and 42–B, and under oven

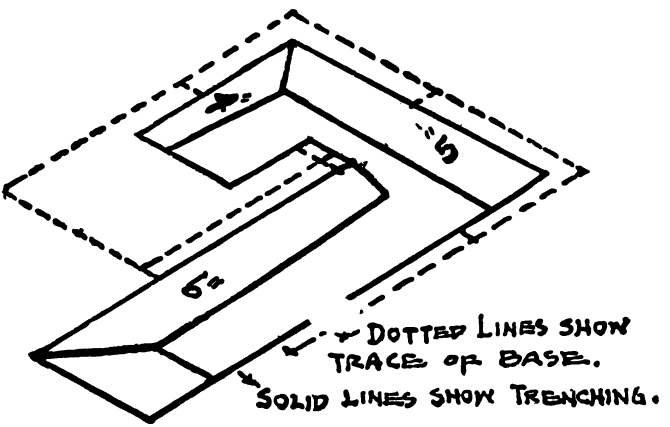

FIGURE 15.—Sketch of trenching for range with attachments.

are about the same as if a trench had been dug as in figure 15. Bank outside of brick walls at sides and back of range with clean earth.

(*f*) At times it may be necessary to install this range for cooking on a railroad car or on a wooden floor of a house, shed, etc. To install, erect a frame 12 inches high, 6 feet long, and 4 feet 6 inches wide; fill with sand and set the oven and boiling plate on top of the sand, anchoring firmly in place. If clay is available, remove all stones, pebbles, etc.; add salt water, and sand. This foundation will become hard and solid and will prevent the burning of the floor.

(2) *Description, installation, and operation of field range No. 2.*—(*a*) The Army field range no. 2, complete, weighs about 150 pounds with utensils, and is designed to cook for 55 men. This range does not have the Alamo attachments. It consists essentially of two parts—the oven no. 61 and boiling plate no. 62.

(*b*) Field range no. 2 is set up practically the same as no. 1, the boiling plate being placed in position and the projecting collar being slipped into the space cut from one end of the oven for that purpose. The fire is maintained in the same manner as when using the no. 1 range.

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(*c*) If the range is to remain in place for several days, it is best to dig a trench, except in sandy soil, about 16 inches wide by 6 inches deep, and of sufficient length for free fueling, say 5 feet. (See fig. 16.)

When installed, the trench should extend under the boiling plate and about 3 inches under the oven—just enough to prevent choking of the draft. If the flame is allowed to play freely on the bottom of the oven chamber, it will become too hot for baking and the bottom of the oven will soon burn out.

c. Remarks on handling ranges and garbage incineration.—(1) *Care of ranges.*—(*a*) A tin will be found inside the baking chamber which may be used if for any reason the bottom of the oven is too hot. Should the bottom be too cold for efficient baking the tin should be removed.

(*b*) Coal should never be used when wood is obtainable. If possible, even when coal is used, part of the fuel should be wood, for the use of coal alone will quickly destroy the range.

(*c*) In permanent camp the space above and on the sides of the oven and stovepipe should be cleaned at least once a week. This also applies to the boiling plates.

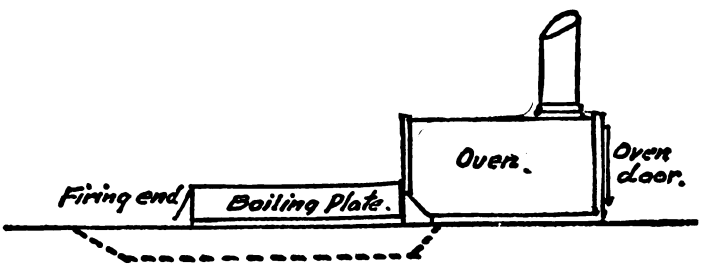

FIGURE 16.

(2) *Assemblage for transportation.*—(*a*) When breaking camp and assembling range no. 1 for transportation, draw boiling plate no. 42 forward. Unfasten the bar lock, pull apart, and remove nos. 42–A and 42–B and proceed as indicated below.

(*b*) To pack the utensils and range no. 1 for transportation, place the bake pan no. 52 on the ground. Set boiler no. 50 inside of bake pan no. 52 and boiler no. 51 inside of boiler no. 50. Place tent guards inside of boiler no. 51 on bottom. Telescope the four joints of pipe. Inside of the pipe place 2 forks, 3 knives, 1 steel, 1 cleaver, and 2 folding lanterns. Place joints of pipe containing utensils inside of boiler no. 51. Place meat chopper in boiler no. 51 alongside of joints of pipe. Place 2 basting spoons, 1 meat saw, and 1 skimmer in boiler no. 51, on top of pipe. Cover with lid no. 51 and then lid no. 50. Place bake pan no. 52 upside down over lid no. 50. Care should be taken that bake pan handles are well down to the sides of the pan. Place stovepipe elbow in no. 54. Place dippers alongside of elbow. Place covers nos. 54, 53, 49, and 48 on boilers in order named. Place nested boilers nos. 48, 49, 53, and 54 in rear end of oven. Place bake pans and nested boilers nos. 50 and 51 in front end of oven. Close the oven door and lock with damper lock. Place 42–A on left front corner of oven no. 41, and 42–B on right front corner, inserting bar in crimp. This bar now rests against the pipe collar and prevents sliding. Place boiling plate no. 42 on top of range, eye

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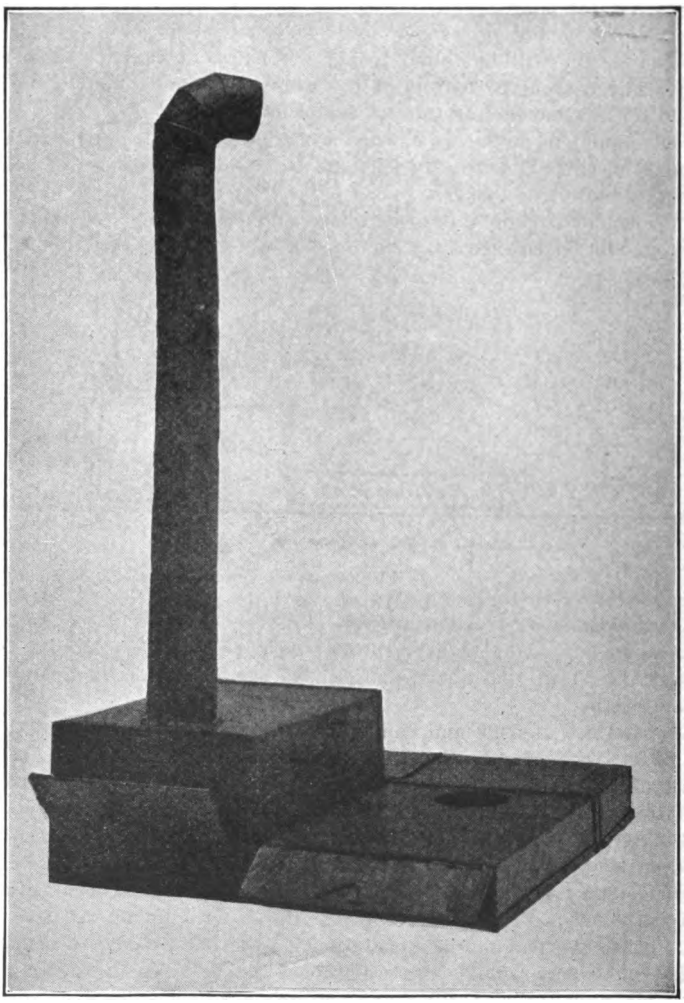

FIGURE 17.—Field range no. 1, set up, front and right side, with boiling plate and Alamo attachments.

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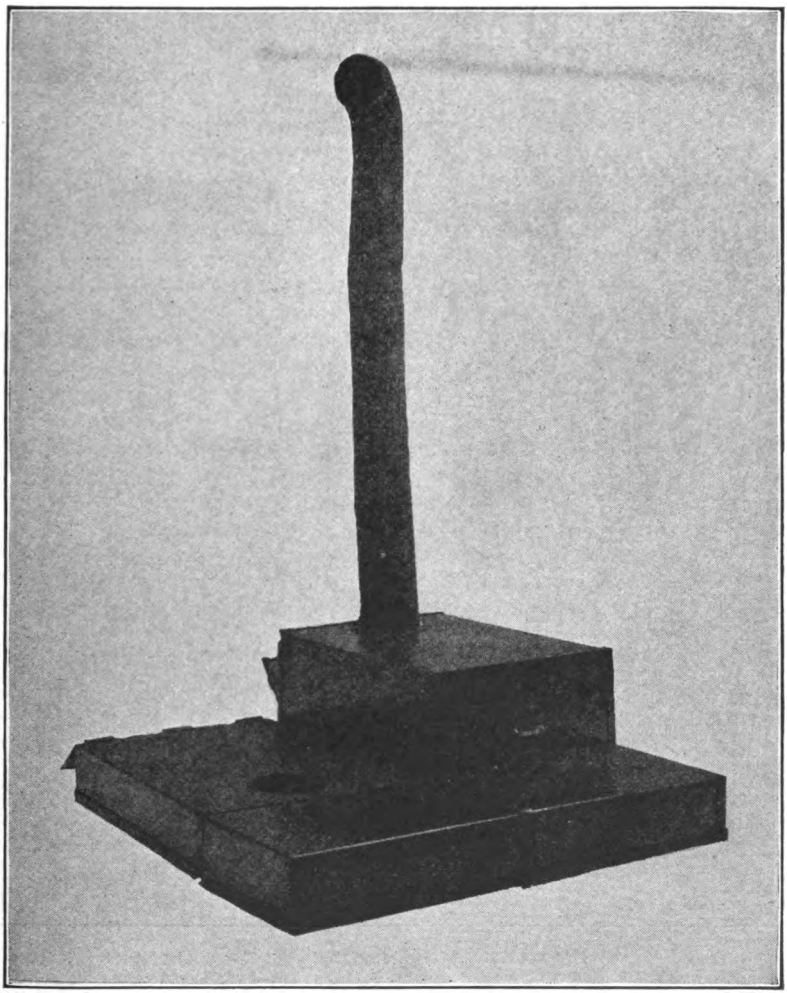

FIGURE 18.—Field range no 1, set up, rear and right side, with boiling plate and Alamo attachments.

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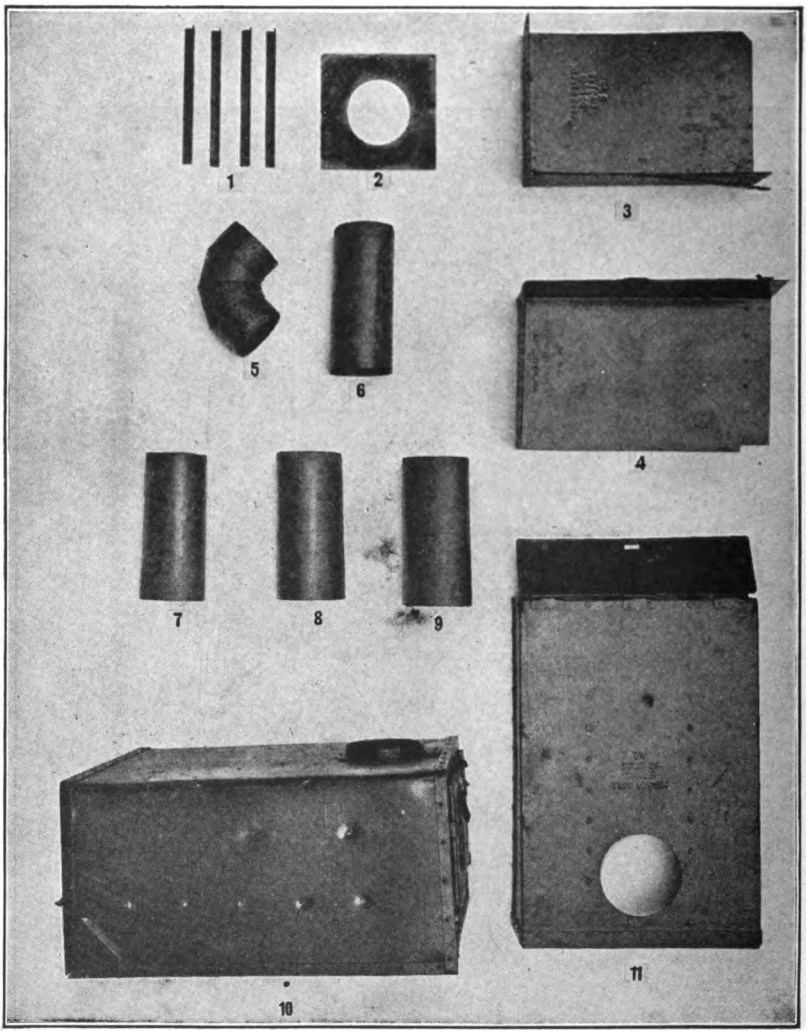

FIGURE 19.—Parts for field range no. 1.

1. Rests, pan, no. 57 (4).
2. Guard, tent, 6½ inches (1).
3. Attachment, Alamo, no. 42 B (1).
4. Attachment, Alamo, no. 42 A (1).
5. Elbow, 6-inch, no. 47 (1).
6. Pipe, stove, no. 46 (1).
7. Pipe, stove, no. 45 (1).
8. Pipe, stove, no. 44 (1).
9. Pipe, stove, no. 43 (1).
10. Body, field range, no. 41 (1).
11. Plate, boiling, no. 42 (1).

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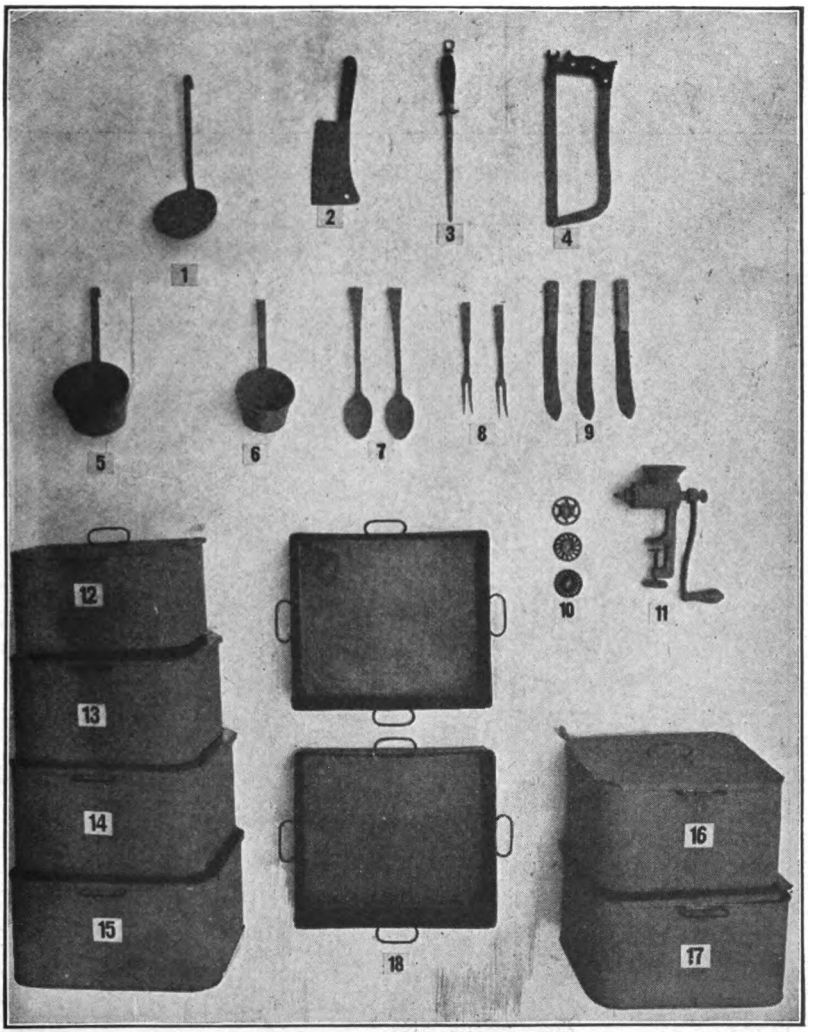

FIGURE 20.—Utensils for field range no. 1.

1. Skimmer, large (1).
2. Cleaver, meat, 8-inch (1).
3. Steel, butcher, 10-inch (1).
4. Saw, meat, 14½-inch blade (1).
5. Dipper, 2-quart, no. 55 (1).
6. Dipper, 1-quart, no. 56 (1).
7. Spoons, basting, large (2).
8. Forks, meat, two prongs (2).
9. Knives, butcher, 8-inch (3).
10. Cutters for meat grinders, assorted sizes (3).
11. Grinders, meat, small (1).
12. Boiler and cover no. 54 (1).
13. Boiler and cover no. 53 (1).
14. Boiler and cover no. 49 (1).
15. Boiler and cover no. 48 (1).
16. Boiler and cover no. 51 (1).
17. Boiler and cover no. 50 (1).
18. Pans, bake no. 52 (2).

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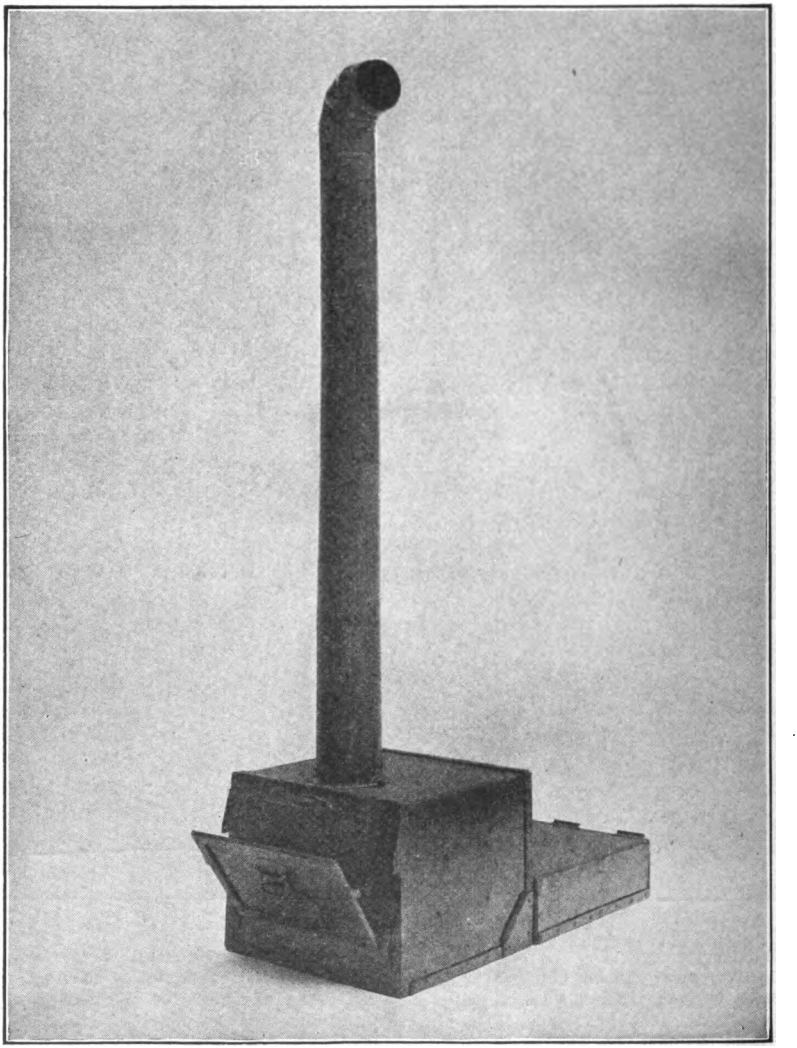

FIGURE 21.—Field range no. 2, set up, front and right side, with boiling plate.

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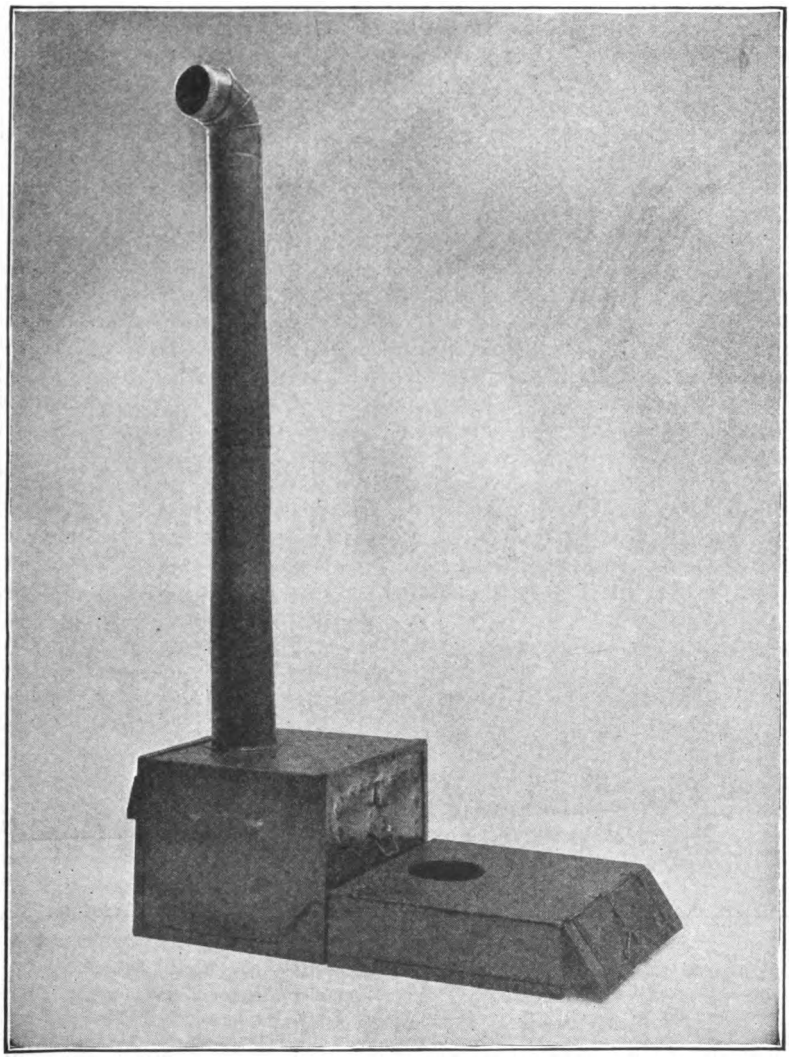

FIGURE 22.—Field range no. 2, set up, rear and right side, with boiling plate.

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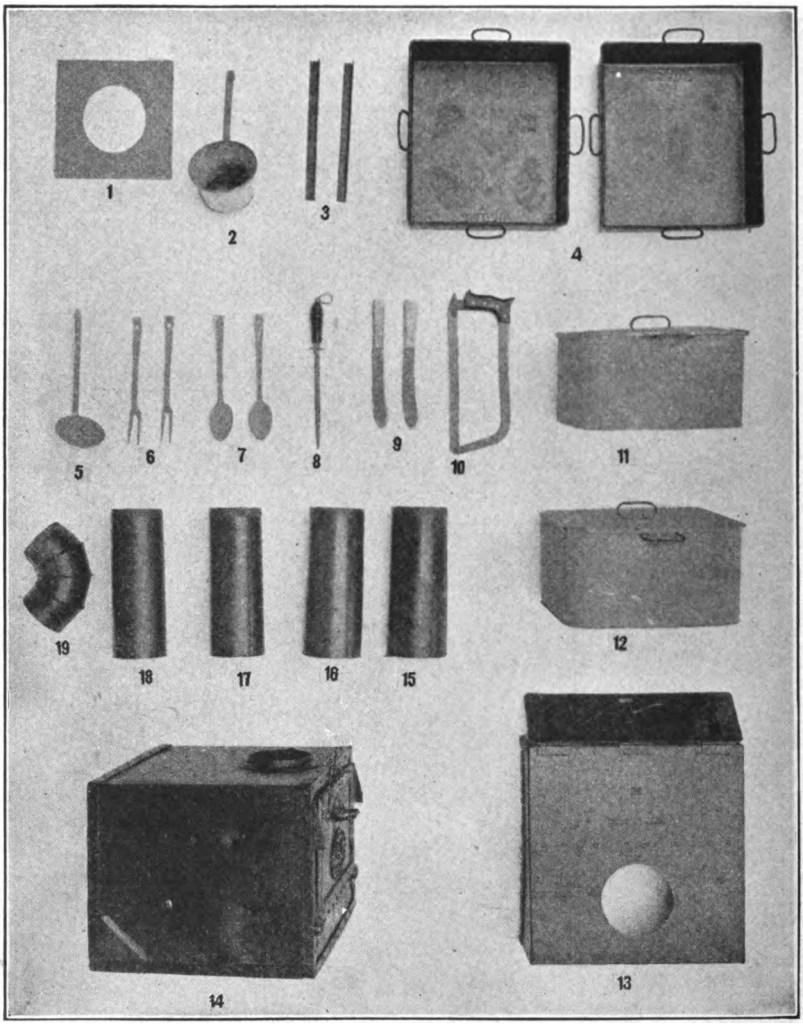

FIGURE 23.—Parts and utensils for field range no. 2.

1. Guard, tent (1 pair).
2. Dipper, 2-quart no. 55 (1).
3. Rests, pan no. 57 (2).
4. Pans, bake no. 52 (2).
5. Skimmer, small (1).
6. Forks, meat, two prongs (2).
7. Spoons, basting, small (2).
8. Steel, butcher, 10-inch (1).
9. Knives, butcher, 8-inch (2).
10. Saw, meat, 14½-inch blade (1).
11. Boiler and cover no. 51 (1).
12. Boiler and cover no. 50 (1).
13. Plate, boiling, no. 62 (1).
14. Body, field range no. 61 (1).
15. Pipe, stove, no. 63 (1).
16. Pipe, stove, no. 64 (1).
17. Pipe, stove, no. 65 (1).
18. Pipe, stove, no. 66 (1).
19. Elbow, no. 67 (1).

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fitting over stovepipe flange and engaging under the flat hook. Make secure by fastening hook on front of boiling plate to the lug on back of range. The range is now secure for transportation.

(*c*) To pack utensils and range no. 2 for transportation, place bake pan no. 52 on the ground. Set boiler no. 50 inside of bake pan no. 52 and boiler no. 51 inside of no. 50. Place tent guards on bottom of boiler no. 51. Telescope the 4 joints of stovepipe. Inside of pipe place 2 forks, 2 knives, 1 steel, 2 spoons, 1 lantern (folding), and 1 skimmer. Place dipper and elbow alongside the pipe. Place meat saw in bake pan no. 52 alongside of boilers. Cover boilers with lids no. 51 and no. 50. Place bake pan no. 52 upside down over lid no. 50. Place pans in range oven. Place the boiling plate at the door end of the oven. Engage the flanges on the inner side of boiling plate with the lugs on the door end of the oven. Fasten the hook on boiling plate (firing end) to lug above the handle on the closed end of oven. The range is now secure for transportation.

136. Fireless cookers, instructions for using.—*a.* A fireless cooker is an airtight receptacle in which food which has been partly cooked is placed. The heat which has been stored in the food by the partial cooking is retained by the airtight fireless cooker, and this retained heat completes the cooking. It is also used to preserve the temperature of food cooked or uncooked. It is generally a boxlike arrangement lined with a nonconducting material inside of which is the well or reservoir into which the vessel containing the food is placed.

b. Many different makes and types of fireless cookers are found on the market. Various materials, such as asbestos, paper, felt, hay, fiber, etc., are used as nonconductors. In some types heated stones are placed in the well under and around the food container to keep the food at a cooking temperature or to supply the heat if it has not been heated over a fire.

c. The advantages of fireless cookers are: The food may be served on the march or upon arrival in camp; they save fuel; being a slow process, they render such foods as less tender meats, tender and palatable; and the food, after being placed in the cooker, requires no further attention.

d. The chief object of a fireless cooker is to retain that heat which has been stored in the food by being previously heated on a cooking range or rolling kitchen. This retained heat completes the cooking of the food, provided the temperature is at 130° F. or higher. Therefore, it is necessary to heat the food, before placing it in the fireless cooker, to a degree of heat which will insure that it will retain 130° F. or higher in the cooker sufficiently long to complete cooking. By experience it has been found that heating the food before placing it in the fireless cooker and leaving it undisturbed in that cooker for the times shown by the following table will insure that cooking will be completed. As soon as the food has been heated on the range according to the table it is transferred to the fireless cooker, which is then closed. It should not be opened until the proper time has elapsed as opening causes loss of heat.

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	Number of minutes at simmering point before putting in cooker	Number of hours in the fireless cooker		Number of minutes at simmering point before putting in cooker	Number of hours in the fireless cooker
Beef, stew	45	6	Chicken, curry of	45	4
Beef a la mode	45	3	Chili con carne	30	3
Beef, corned	45	3	Codfish, creamed	15	2
Beef, curry of	45	3	Ham, boiled	45	4
Beef, roast, soft	45	3	Mutton, stew	20	4
Beef, Turkish	45	3	Parsnips	30	3
Beans, Boston, baked	60	12	Pork, fresh, boiled	60	4
Beans, lima	45	3	Potatoes, irish	15	2
Beans, kidney	90	6	Potatoes, sweet	20	2
Beans, string, green	30	2	Sauerkraut, with bacon or salt pork	45	3
Cabbage, with bacon	20	3	Succotash	20	3
Cabbage, Bavarian	15	3	Tomatoes, stewed	20	1
Cabbage, with fresh pork	45	3	Turnips, boiled	60	3
Carrots, boiled	20	3			
Chicken, stew	45	6			

NOTE.—Meat should not be cooked in pieces weighing more than from 3 to 5 pounds.

e. Whether or not the cooking water or liquid portion of foods which have been heated on the range should be drained off before transfer to the fireless cooker depends on the nature of the foods. Potatoes, parsnips, carrots, onions, cabbage, and turnips are cooked in large quantities of water. If all of this cooking water were transferred with the food to the fireless cooker the result would be a soup; therefore, all of the cooking water must be drained from starchy vegetables, as potatoes, parsnips, carrots, and turnips, and about half the cooking water should be drained from leafy vegetables, as cabbage, and from watery vegetables, as onions. On the other hand, all of the cooking liquid of meats should go in the fireless cooker with the meats as the quantity of liquid will be about correct for the purpose; that is, in stew all the cooking liquid is needed, and in soft roast of beef it also is needed for gravy.

f. Tomatoes, sauerkraut, applesauce made from fresh tart apples, or any other food containing acid should not be permitted to remain in a fireless cooker or other tinned receptacle longer than 4 or 5 hours, whether being cooked or after cooking, as the acid attacks the tin and some of the tin may be dissolved into the food. Coffee to be kept hot in a fireless cooker should be prepared in the usual way and the grounds removed.

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APPENDICES

Page
APPENDIX I. Recipes 111
II. Tables and useful information 192

APPENDIX I

RECIPES

Paragraphs
SECTION I. Introduction 1-3
Recipes
II. Recipes 1-331

SECTION I

INTRODUCTION

Paragraph
General 1
Variation in recipes 2
Weights and measures 3

1. General.—All the recipes included in this manual have been put into this appendix. These recipes do not include all the recipes found in other cookbooks due to the fact that all recipes are not suitable for an Army mess. However, a good cook will always be on the alert to discover additional recipes from commercial cookbooks and other sources of dishes which are suitable for an Army mess. In this manual all recipes are based on service for 100 men. The quantity required for a greater or smaller number of men can be easily figured by changing the amount of each ingredient proportionally. For convenience of use and ease in finding, the recipes have been indexed and arranged in groups as follows:

Breakfast dishes
Soups
Meat dishes (includes poultry, game, and omelets)
Gravies and sauces
Fish and sea-food dishes
Vegetable dishes
Desserts
Sweet-dough products
Hot breads
Rolls
Salads and dressings
Beverages

In each group recipes are arranged in alphabetical order. The index should be used as a reminder of the various ways in which food can be prepared and also of the many varieties of foods and dishes which are usable in a mess.

2. Variation in recipes.—The opinions of experienced cooks often vary as to the proper quantities of food required to prepare various dishes for a given number of men. This variation of opinions is due to individual taste or based upon their knowledge of the preference of their particular messes. The recipes in this manual are designed to be a guide for those who do not definitely know

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the exact quantities required, and these recipes will produce satisfactory results if accurately followed. The quantities shown for 100 men may be successfully modified by an experienced cook and should be so modified by experience where local conditions justify or demand this. The quantity of food consumed by a mess will vary according to the character of duty performed, the number of absentees, the season of the year, and many other causes, and the same mess will require noticeably varying quantities, dependent upon varying conditions of service. Inexperienced cooks should follow the recipes contained herein; experienced cooks may successfully deviate from the recipes under certain conditions, and all cooks should know by experience the proper quantities of food required to satisfy their own messes. This knowledge is acquired by the constant study of these and other recipes and of the preferences of the messes which they serve, as evidenced by their consumption or rejection of the dishes offered.

3. **Weights and measures.**—*a.* Scales and liquid measures are issued to messes in barracks but are not issued in the field. However, in the absence of these, the cook can use dippers, cups, and spoons for measuring the quantities called for in recipes. The following table shows quantities of frequently used foods measured in utensils available in the mess:

Pepper, cinnamon, or other ground spices	1 level spoon, M1918	¼ ounce.
Flour or baking powder		
Melted butter or other fat	do	½ ounce.
Flavoring extract	do	Do.
Sugar	do	⅛ ounce.
Flour or baking powder	1 quart size dipper level full	1 pound.
Sugar	1 quart size dipper heaping full.	2 pounds.

NOTE.—Additional information on weights of foods contained in utensils available in the mess will be found in paragraph 1, appendix II.

b. If a recipe calls for 1 ounce of cinnamon, 4 level tablespoonfuls are required; if it calls for 2 ounces of baking powder, 8 level tablespoonfuls are required, etc.

c. When evaporated milk is used in place of fresh milk, the quantity given in a recipe should be diluted with an equal quantity of water to produce an amount equal to fresh milk. One 14½-ounce can of evaporated milk, diluted with 1 pint of water, is equal to 1 quart of fresh milk.

d. Whenever a recipe calls for fresh beef, veal, pork, or mutton, the quantity given includes the weight of bones. In other words, the quantities given in this manual do not mean boneless cuts of meat.

e. The following table will be found convenient. Each weight is based on the cup or spoon being level full.

	Flour	Sugar	Pepper, cinnamon, etc.
	Ounces	*Ounces*	*Ounce*
Standard measuring cup	4	8	
Quartermaster tablespoon or mess-kit spoon	¼	½	¼
Cup, M1918	14	24	
Standard measuring teaspoon	1/12	⅙	

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SECTION II

RECIPES

BREAKFAST DISHES	Recipe
Cakes, buckwheat	1
Cakes, corn	2
Cakes, wheat (hot cakes)	3
Hominy grits, boiled	4
Hominy grits, fried	5
Milk for breakfast foods	6
Mush, corn meal	7
Mush, corn meal, fried	8
Mush, rolled wheat	9
Oatmeal	10
Prepared breakfast foods	11
Toast, french	12
Toast, milk	13

SOUPS	
Barley soup	14
Barley and tomato soup	15
Bean soup	16
Beef soup	17
Chicken soup	18
Clam chowder	19
Codfish chowder	20
Corn chowder	21
Cream of cabbage soup	22
Cream of celery soup	23
Cream of tomato soup	24
Green pea soup	25
Lentil soup	26
Macaroni and tomato soup	27
Noodle soup	28
Noodles	29
Oxtail soup	30
Oyster stew	31
Potato chowder	32
Potato soup	33
Puree of beans	34
Puree of carrots	35
Puree of green peas	36
Puree of green peas and tomatoes	37
Puree of lima beans	38
Puree of potatoes	39
Puree of split peas	40
Rice soup	41
Split pea soup	42
Tomato soup	43
Tomato and rice soup	44
Vegetable soup	45

MEAT DISHES	
Bacon and cabbage	46
Bacon, fried	47
Bacon, simmered	48
Beef a la mode	49
Beef, braised (pot roast)	50
Beef, braised, with vegetables	51
Beef, corned	52
Beef, corned, preparation	53
Beef, curry of	54
Beef dressing	55
Beef, dried, chipped, or sliced, on toast	56

19971°—35——8

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	Recipe
Beef fricassee	57
Beef fritters	58
Beef hash	59
Beef hearts, stuffed	60
Beef loaf	61
Beef potpie	62
Beef, roast	63
Beef rolls	64
Beef, simmered	65
Beef, soft roast	66
Beef, spanish	67
Beefsteak	68
Beefsteak, hamburg	69
Beefsteak and mushrooms	70
Beefsteak and onions	71
Beefsteak potpie	72
Beef, turkish	73
Brains	74
Brains and eggs	75
Chicken, creamed	76
Chicken, curry of	77
Chicken fricassee	78
Chicken, fried	79
Chicken, roast	80
Chicken stew with dumplings	81
Dumplings	82
Chili con carne	83
Chuck steak with onions	84
Duck, roast	85
Game, small	86
Goose, roast	87
Ham, baked	88
Ham, simmered	89
Ham and tomatoes	90
Ham, smothered	91
Hamburger	92
Hash, chop suey	93
Liver and bacon	94
Meat loaf	95
Mutton, simmered	96
Mutton chops	97
Mutton potpie	98
Mutton stew	99
Omelet, plain	100
Omelet, cheese	101
Omelet, ham	102
Omelet, tomato	103
Pig, roasted	104
Pork chops	105
Pork cutlets	106
Pork, roast	107
Pudding, english beef	108
Sausage, bologna, fried	109
Sausage, liver, fried	110
Sausage, pork	111
Sausage, pork, in blankets	112
Sausage, frankfurter	113
Sausage, frankfurter, in blankets	114
Short ribs of beef	115
Southern creoles	116
Spaghetti, italian style	117
Spareribs	118
Stew, chop suey	119

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	Recipe
Stew, pan	120
Stew el rancho	121
Stew, irish	122
Tamales	123
Turkey, roast	124
Turkish stew	125
Veal cutlets	126
White fricassee of veal	127
Veal, roast	128
Venison cutlets	129
Venison, roast	130
Yorkshire pudding	131
GRAVIES AND SAUCES	
Flour batter	132
Gravy, brown	133
Gravy, cream	134
Gravy, giblet	135
Gravy, stock	136
Sauce, barbecue	137
Sauce, cranberry	138
Sauce, cream, for codfish	139
Sauce, plum pudding	140
Sauce, rhubarb	141
Sauce, spanish, fish	142
Sauce, sweet, chocolate	143
Sauce, sweet, lemon	144
Sauce, sweet, vanilla	145
Sauce, tomato	146
FISH AND SEA FOOD DISHES	
Baked fish	147
Codfish, salt, boiled	148
Codfish cakes	149
Fish, fresh, fried	150
Oysters, fried	151
Oysters, scalloped	152
Salmon cakes	153
Salmon hash	154
VEGETABLE DISHES	
Asparagus	155
Baked beans	156
Beans, canned	157
Beans, dry, simmered	158
Beans, lima, green or soaked, canned	159
Beans, lima, dry, simmered	160
Beans, string or snap, canned	161
Beans, string or snap, fresh	162
Beets, fresh, boiled	163
Beets, canned	164
Beets, harvard	165
Beets, pickled	169
Cabbage	167
Cabbage, bavarian	168
Cabbage, boiled	169
Cabbage, fried	170
Carrots, baked	171
Carrots, candied	172
Carrots, mashed	173
Corn, canned	174
Corn, fried	175
Corn fritters	176

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	Recipe
Corn, scalloped	177
Eggplant	178
Greens	179
Hominy	180
Macaroni and cheese	181
Onions, boiled	182
Onions, fried	183
Onions and grated cheese	184
Parsnips, baked	185
Parsnips, mashed	186
Parsnips, sugared	187
Peas, creamed, canned	188
Peas, green	189
Potatoes, baked	190
Potatoes, boiled	191
Potatoes, boiled in jackets	192
Potatoes, browned	193
Potato cakes	194
Potatoes, cheesed (au gratin)	195
Potatoes, creamed	196
Potatoes, french baked	197
Potatoes, french fried	198
Potatoes, fried (sautéed)	199
Potatoes, german boiled	200
Potatoes, hashed browned	201
Potatoes, lyonnaise	202
Potatoes, mashed	203
Potatoes, sweet, baked	204
Potatoes, sweet, boiled	205
Potatoes, sweet, candied	206
Potatoes, sweet, fried	207
Pumpkin, baked	208
Rice, boiled	209
Rice, curried	210
Rice, fried	211
Rice, spanish	212
Rice, steamed	213
Sauerkraut	214
Sauerkraut, how made	215
Squash, baked	216
Squash, canned, baked	217
Squash, mashed	218
Succotash	219
Tomatoes, stewed	220
Turnips, boiled	221
Turnips, mashed	222
Turnips, left-over	223

DESSERTS

Apples, baked	224
Apple or fruit rolls	225
Apple sauce	226
Apricots, dried, stewed	227
Brown betty	228
Cake, chocolate	229
Cake, corn	230
Cakes, cup	231
Cake, eggless	232
Cake, fruit, dark	233
Cake, marble	234
Cake, quick	235
Cake, raised	236
Cake, spice	237

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	Recipe
Cake, sponge	238
Cake, white	239
Cobbler, apple or fruit	240
Crullers	241
Custard, egg	242
Fritters, oatmeal	243
Fruits, dried, stewed	244
Gelatin	245
Ice cream	246
Ice cream, chocolate	247
Ice cream, coffee	248
Ice, lemon	249
Ice, orange	250
Ice, pineapple	251
Icing, boiled, for cakes	252
Icing, uncooked, for cakes	253
Meringue	254
Mincemeat	255
Peaches, dried, stewed	256
Pie crust	257
Pie, apple or fruit	258
Pie, banana cream	259
Pie, chocolate, meringue	260
Pie, coconut cream	261
Pie, custard	262
Pie, lemon cream	263
Pie, mince	264
Pie, pumpkin or squash	265
Prunes, stewed	266
Pudding, apple	267
Pudding, banana	268
Pudding, bread, with sauce	269
Pudding, cornstarch	270
Pudding, indian, baked	271
Pudding, plum	272
Pudding, rice and apple	273
Pudding, rice	274
Pudding, sweet potato	275
Pudding, tapioca	276
SWEET DOUGH PRODUCTS	
Basic sweet dough	277
Cake, apple	278
Cake, coffee	279
Doughnuts	280
Doughnuts, jelly	281
Rolls, cinnamon	282
Rolls, parkerhouse	283
Stollen	284
HOT BREADS	
Biscuit, baking powder	285
Biscuit, cheese	286
Biscuit, sour milk	287
Corn bread	288
Corn bread (sour milk)	289
Gingerbread	290
ROLLS	
Basic dough	291
Cinnamon rolls	292
Finger rolls	293
Pan rolls	294

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	Recipe
Parkerhouse rolls	295
Raisin bread	296
Soft bun bread	297
Sandwich buns	298

SALADS AND DRESSINGS

Apple and celery salad	299
Baked bean salad	300
Bean, stringless, salad	301
Beet salad, pickled	302
Cabbage salad	303
Cabbage and apple salad	304
Celery salad	305
Chicken salad	306
Cucumber and onion salad	307
Lettuce salad	308
Piccalilli salad	309
Pimento salad	310
Potato salad	311
Raw vegetable salad	312
Salmon salad	313
Slaw (cole slaw)	314
Tomatoes, sliced	315
Vegetable salad	316
Boiled dressing	317
French dressing	318
Mayonnaise dressing	319
Mayonnaise dressing, fruit salad	320
Mustard salad dressing	321
Russian mayonnaise	322
Salad dressing, eggless	323
Sour cream dressing	324
Tartare mayonnaise	325
Tomato french dressing	326
Thousand island dressing	327

BEVERAGES

Cocoa or chocolate	328
Coffee, hot	329
Lemonade	330
Tea, hot and iced	331

BREAKFAST DISHES

1. Cakes, buckwheat

8 pounds flour, buckwheat
4 pounds flour, wheat
3 ounces salt
12 ounces baking powder
3 pounds sugar or molasses *
1 can milk, evaporated
6 quarts water
12 eggs

Procedure same as for wheat cakes except that no melted fat is added.

2. Cakes, corn

8 pounds flour
4 pounds corn meal
12 ounces baking powder
4 ounces salt
1½ pounds sugar
6 quarts boiling water
2 cans milk, evaporated
12 eggs, beaten
1 pound melted fat
1 gallon water

* When molasses is used it should be mixed with the eggs, water, and milk.

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Add the corn meal to the boiling water and boil for 5 minutes, cool, then place in mixing bowl. Add the milk and the 1 gallon of water. Sift together the flour, baking powder, salt, and sugar, and mix. Add the beaten eggs and melted fat (butter or vegetable shortening is best). Beat well and cook the same as wheat cakes.

3. Cakes, wheat (hot cakes)

12 pounds flour
3 pounds sugar
4 ounces salt
12 ounces baking powder
12 eggs
½ pound fat, melted
1 can milk, evaporated
6 quarts water

Sift together the flour, sugar, salt, and baking powder. Beat the eggs and add to water and evaporated milk. Turn this mixture into the sifted flour mixture and add the melted fat (vegetable shortening is best). Then beat into a smooth batter. If the batter seems too thick, add a little more water or milk. Grease a hot griddle iron or clean stove top with bacon rind or clean fat and pour out the batter, a spoonful at a time. Cook until nicely browned on both sides. Serve hot with butter or sirup, or both. Hot cakes should be cooked a few at a time. If all the cakes required for a meal are cooked before starting to serve, the first ones cooked will become tough and leathery.

4. Hominy grits, boiled

9 pounds hominy grits
7 gallons water
2 pounds sugar
2 ounces salt

Bring the salted water to a boil, then add sugar and hominy, and boil for about 20 minutes or until tender. Remove to the back part of the range and let simmer for about 40 minutes. (A double boiler is preferable. One can be made by inserting the boiler containing the hominy into a large boiler.) Serve with butter or sirup.

5. Hominy grits, fried

10 pounds hominy grits, fine
7 gallons water
4 ounces salt

Prepare as in recipe 4. Remove from the boiler, spread about 1 inch deep in well-greased pan, and allow to cool. Cut in pieces about 2 inches square, roll in flour, and fry in deep fat. Serve hot with sirup or butter.

6. Milk for breakfast foods

15 cans milk, evaporated
4 pounds sugar
1 ounce salt

Add sufficient water to make 7½ gallons. Whip well for a few minutes. One ounce vanilla or lemon extract may be added if desired. This recipe will produce a satisfactory substitute when fresh milk is not available.

7. Mush, corn meal

10 pounds corn meal, white or yellow, (white preferred)
3 pounds sugar
7 gallons water
1½ ounces salt

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Bring the salted water to a boil, then add the sugar and corn meal, meanwhile whipping briskly to prevent lumping. Cook for about 20 minutes and then allow to stand about the same length of time where it will remain hot. Place in vegetable dishes and serve with fresh milk or diluted evaporated milk (recipe 6).

8. Mush, corn meal, fried

12 pounds corn meal
7 gallons water
3 ounces salt
2 pounds sugar

Prepare in the same manner as corn meal mush. Pour the mush into a well-greased bake pan to a depth of about 1 inch, allow to cool, cut into pieces about 2 inches square, dip in a flour batter, and fry in a deep fat. Serve hot with butter and sirup.

This preparation may be improved by dipping each piece in an egg batter before rolling in the flour.

9. Mush, rolled wheat

Prepare in the same manner as oatmeal (recipe 10), using 9 pounds rolled wheat instead of 9 pounds of oatmeal.

10. Oatmeal

9 pounds oatmeal
½ pound sugar
2 ounces salt
8 gallons water

Bring the salted water to a boil, whip the oatmeal in slowly, adding sugar, and boil for 5 minutes. Let simmer 30 minutes and serve with milk and sugar. (See recipe 6.)

NOTE.—This recipe is for the regular style oatmeal or rolled oats. The quick type requires only about 3 minutes and no simmering. The package will show whether it contains the quick type.

11. Prepared breakfast foods

Follow the directions given on the packages.

12. Toast, french

30 pounds bread, dry
5 cans milk, evaporated
7 pints water
10 eggs
1½ pounds cornstarch
2½ ounces vanilla

Slice the bread ½-inch thick (be careful not to cut bread too thick). Mix milk, water, eggs, vanilla, and corn starch into a batter. Add salt to taste. Dip slices in the batter and fry in deep fat or on a griddle. Serve hot with butter or sirup, or both.

13. Toast, milk

20 pounds bread
4 pounds sugar
4 gallons milk, or 16 cans milk, evaporated, and 16 pints water

Slices of left-over bread may be used. Place the bread in a large bake pan (not more than one-third full) and brown in a 15-count oven. (See par. 84.) Serve in vegetable dishes with hot sweetened milk poured over it. (See recipe 6.)

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14. Barley soup

7 gallons beef stock
3 pounds barley, pearled
2 pounds onions, chopped
Salt and pepper to taste

Thoroughly mix all ingredients and boil for 1 hour. Ten minutes before serving add enough beef stock to make 10 gallons of soup. Season to taste with salt and pepper.

15. Barley and tomato soup

7 gallons beef stock
5 pounds barley
8 pounds tomatoes (fresh or canned)
2 pounds bacon, diced
Salt and pepper to taste

Thoroughly mix all ingredients and boil for 1 hour. If fresh tomatoes are used, they should first be stewed and pressed through a colander. Ten minutes before serving, add enough beef stock to make 10 gallons of soup. Season to taste with salt and pepper.

16. Bean soup

3 pounds beans, dry
7 gallons water or beef stock
10 pounds soup bone
1½ pounds bacon, diced and browned
2 cans tomatoes, no. 2½ or no. 3 cans
Salt and pepper to taste

Thoroughly clean and wash the beans. Place them and the soup bone in the beef stock and allow to simmer for about 5 hours, or until the beans have gone to pieces and will pass through a colander. Ten minutes before serving add the tomatoes, the diced and browned bacon, and enough beef stock to make 10 gallons of soup. Thicken with a flour batter and season to taste with salt and pepper. Serve hot with crackers or croutons.

17. Beef soup

7 gallons beef stock
5 pounds beef, shank, neck, etc.
2 cans tomatoes, no. 3 cans
2 pounds rice, if desired
1 bunch parsley, if desired
Salt and pepper to taste

This soup may be made to best advantage on days when simmered beef is served. After simmering the beef until done, take it out and skim off the grease. Dice the beef very fine and add the stock and tomatoes to the water in which the beef was boiled; if desired, a little rice may be added. Ten minutes before serving, add enough beef stock to make 10 gallons of soup. Season to taste with salt and pepper and serve hot. Sprinkle with chopped parsley.

18. Chicken soup

7 gallons beef stock
17 pounds chicken scraps (bones, wing tips, necks, legs, etc.)
2 pounds rice
6 ounces parsley, chopped fine
Salt and pepper to taste

Simmer the chicken scraps until well done. Remove the bones and place them in the beef stock, then boil for 1 hour. Remove the bones and strain the stock. Dice the chicken very fine and place in a boiler with the strained

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stock and add the rice and boil for 30 minutes. Ten minutes before serving, add enough beef stock to make 10 gallons of soup. Sprinkle with chopped parsley.

NOTE.—Chicken soup should be made only when chicken is being served in one of the following forms: Roasted, stewed, fricasseed. It is not economical to buy chicken for the sole purpose of making soup. On days when chicken is being served there are ample scrap meat and bone from wing tips, necks, legs, etc., to make a delicious chicken soup.

19. Clam chowder

6 quarts clams, husked, diced
12 pounds potatoes, diced, raw
2 pounds bacon, diced and browned
7 gallons beef stock
2 pounds onions, chopped, browned
2 pounds flour
Salt and pepper to taste

Boil the potatoes, clams, bacon, and onions in the beef stock until well done. If fresh clams are used, wash thoroughly to remove sand. Thicken slightly with a flour batter and serve hot. Season to taste with salt and pepper and add enough beef stock 10 minutes before serving to make 10 gallons.

20. Codfish chowder

9 pounds codfish, salt, shredded
2 pounds bacon, diced
2 pounds onions, chopped
6 pounds potatoes, diced, raw
2 pounds bread
4 cans milk, evaporated
7 gallons beef stock
Salt and pepper to taste

Brown the bacon and onions in a bake pan, then transfer to a boiler and add the potatoes, codfish, and beef stock. Boil until done, about 20 minutes. Add enough beef stock 10 minutes before serving to make 10 gallons. Toast sliced bread (preferably dried-out bread) in the oven and add it, after dicing, to the chowder when the potatoes are done. Then add the milk and season to taste with salt and pepper.

21. Corn chowder

5 cans corn, no. 2 cans
2 pounds bacon, diced
2 pounds onions
6 pounds potatoes, diced
8 gallons beef stock
4 cans milk, evaporated
2 pounds bread, diced
Salt and pepper to taste

Brown the bacon and onions in a bake pan, then transfer to a boiler and add the potatoes and beef stock. Boil until done, about 20 minutes. Add enough beef stock 10 minutes before serving to make 10 gallons. Toast sliced bread (preferably dried-out bread) in the oven and add it to the chowder after the potatoes are done. Add the milk and corn but do not allow to boil. Season to taste with salt and pepper.

22. Cream of cabbage soup

10 pounds cabbage, chopped fine
7 gallons beef stock
4 cans milk, evaporated
2 pounds fat, butter preferred
1 pound flour, browned in the fat
Salt and pepper to taste

Boil the cabbage about 15 minutes, add the beef stock, thicken with the browned flour, and season to taste with pepper, salt, and celery salt. Add the milk. Add enough beef stock 10 minutes before serving to make 10 gallons.

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23. Cream of celery soup

7 pounds celery, diced fine
7 gallons beef stock
2 pounds fat, butter preferred
2 pounds flour, browned in fat
4 cans milk evaporated
Salt and pepper to taste

Add the celery to the beef stock and boil about 1 hour. Season to taste with pepper, celery salt, and salt. Thicken with batter made of the fat and flour, and just before serving add the milk. Add enough beef stock 10 minutes before serving to make 10 gallons.

24. Cream of tomato soup

7 gallons beef stock
4 cans tomatoes, no. 3 cans
4 cans milk, evaporated
2 pounds fat, butter preferred
2 pounds flour, browned in fat
Salt and pepper to taste

Add the tomatoes to the stock and bring to a boil. Break up the tomatoes. Season to taste with celery salt, mustard, salt, and pepper. Thicken slightly with the browned flour, and add the milk and a pinch of soda. Add enough beef stock 10 minutes before serving to make 10 gallons.

25. Green pea soup

10 cans green peas, no. 2 cans, or 12 pounds fresh shelled peas
7 gallons beef stock
Salt and pepper to taste

If canned peas are used, boil for 10 minutes in the beef stock. If fresh peas are used, boil in beef stock until well done. Add enough beef stock 10 minutes before serving to make 10 gallons.

26. Lentil soup

Prepared in the same manner as bean soup (recipe 16), substituting lentils for beans.

27. Macaroni and tomato soup

3 pounds macaroni
7 gallons beef stock
2 pounds onions, chopped
2 pounds bacon, diced
5 cans tomatoes, no. 3 cans, or equivalent fresh tomatoes
Salt and pepper to taste

Break the macaroni in pieces about 1 inch long. Add macaroni, onions, and bacon to boiling beef stock and boil for 40 minutes, seasoning to taste with salt and pepper. Add tomatoes and boil a few minutes. Break up the tomatoes. Add enough beef stock 10 minutes before serving to make 10 gallons.

28. Noodle soup

7 gallons beef stock
5 pounds noodles
Salt and pepper to taste

Boil noodles 40 minutes in the seasoned soup stock. Add enough beef stock 10 minutes before serving to make 10 gallons.

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29. Noodles

3 pounds flour
1½ ounces salt
9 eggs
Milk or water to make a stiff dough

To prepare noodles, sift ½ ounce of salt with each pound of flour, break 3 eggs into the sifted mixture, and mix with milk and water until a stiff dough is formed. Roll the dough out until it is about ⅛ inch thick, sprinkle a little flour over it, and roll it up. Cut slices from the end of the roll about ⅛ to ¼ inch thick and spread on a board or cloth in the sun to dry.

30. Oxtail soup

12 pounds oxtails
7 gallons beef stock
4 pounds carrots, diced
4 pounds onions, diced
Salt and pepper to taste

Cut the oxtails into small pieces (about 1 inch long), wash, drain, sprinkle with salt and pepper, dredge with flour, and brown in fat or bacon drippings in a pan on top of the stove. Add to the stock with the carrots and onions, and simmer until the meat is tender. If desired, the soup may be thickened with a flour batter. Just before serving add sufficient stock to make 10 gallons of soup.

31. Oyster stew

10 quarts oysters, fresh, or 20 no. 2 cans oysters
7 gallons beef stock
5 cans milk, evaporated
Salt and pepper to taste

Drain the liquor from the oysters. Add flour to the liquor from the oysters to make a thin batter. Add the batter to the stock and bring to a boil. Season. Add the oysters. Boil 5 minutes. Add enough beef stock 10 minutes before serving to make 10 gallons.

32. Potato chowder

Prepare in same manner as corn chowder (recipe 21), using 10 pounds of potatoes in place of corn.

33. Potato soup

10 pounds potatoes, diced
7 gallons beef stock
2 pounds onions, chopped and browned
2 cans milk, evaporated
2 pounds fat, butter preferred
1 pound flour, browned in fat
Salt and pepper to taste

Boil the potatoes in the stock until well done, then pass through a colander and bring to a boil again. Thicken with the flour batter. Add the chopped onions and evaporated milk. Add enough beef stock 10 minutes before serving to make 10 gallons.

34. Puree of beans

5 pounds dry beans
7 gallons beef stock
1 pound bacon, diced and browned
2 pounds fat, butter preferred
2 pounds flour, browned in fat
Salt and pepper to taste

Place the beans, bacon, and stock in the boiler, and let simmer over night, or until the beans are thoroughly broken to pieces. Pass through a colander,

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replace in boiler, and add a batter made of the flour and fat. Season. Allow to simmer at least 1 hour before serving. Ten minutes before serving add enough beef stock to make 10 gallons of soup.

35. Puree of carrots

Prepare in the same manner as puree of beans (recipe 34), using 17 pounds of diced carrots braised or fried in a little fat until brown, instead of 5 pounds of beans, and simmer about 2 hours or until carrots are well done.

36. Puree of green peas

Prepare in the same manner as puree of beans (recipe 34), using 5 pounds of green peas instead of 5 pounds of beans. Only about 1 hour's simmering is required.

37. Puree of green peas and tomatoes

Prepare in the same manner as puree of green peas (recipe 36), using four no. 3 cans tomatoes (or the equivalent in fresh tomatoes), and 6 pounds of green peas.

38. Puree of lima beans

Prepare in the same manner as puree of beans (recipe 34), using 5 pounds of dry lima beans instead of 5 pounds of dry beans. Two and one-half cans of evaporated milk or 3 quarts of fresh milk added just before serving greatly improve the flavor.

39. Puree of potatoes

10 pounds potatoes, diced fine
7 gallons beef stock
2 pounds bacon, diced and browned
2 pounds fat, butter preferred
1 pound flour, browned in fat
Salt and pepper to taste

Add the potatoes and bacon to the cold stock and boil until potatoes are completely broken to pieces, seasoning to taste. A stalk of fresh celery or a little celery salt may be used as additional seasoning. Thicken slightly with the flour batter. Add enough beef stock 10 minutes before serving to make 10 gallons.

40. Puree of split peas

Prepare in the same manner as puree of beans (recipe 34), using 5 pounds of split dried peas instead of 5 pounds of beans.

41. Rice soup

3 pounds rice
7 gallons beef stock
1 pound onions, chopped and browned
2 pounds bacon, diced and browned
Salt and pepper to taste

Wash the rice and add it to the bacon, onions, and cold stock, and boil for 1 hour.

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42. Split pea soup

7½ pounds split peas
7 gallons beef stock
2 pounds bacon, diced and browned, or ham bones or bacon rind
Salt and pepper to taste

Add the peas and bacon to the cold stock and let simmer for 5 hours. Add enough beef stock 10 minutes before serving to make 10 gallons.

43. Tomato soup

12 pounds tomatoes, fresh, or 6 no. 3 cans tomatoes
5 gallons beef stock
2 pounds bacon
2 pounds flour
1 pound sugar
Salt and pepper to taste

Place the tomatoes and bacon in the stock and boil for 1½ hours. Remove the bacon and press the soup through a colander to separate the skins and seeds of the tomatoes. Replace on the range and thicken with a flour batter. Color lightly with caramelized sugar. Add enough beef stock 10 minutes before serving to make 10 gallons. Overripe or bruised (but not deteriorated) tomatoes may, to prevent waste, be used in the preparation of this soup.

44. Tomato and rice soup

3 cans tomatoes, no. 3 cans, or 6 pounds fresh tomatoes
2 pounds rice
7 gallons beef stock
Salt and pepper to taste

Chop the tomatoes thoroughly and mix all ingredients. Season to taste, adding a small piece of garlic. Boil for 1 or 2 hours. Add enough beef stock 10 minutes before serving to make 10 gallons.

45. Vegetable soup

2 pounds cabbage
1 pound onions
2 pounds potatoes
1 pound rice
2 cans tomatoes, no. 3 cans, or 4 pounds fresh tomatoes
7 gallons beef stock
2 pounds celery
Parsley, chopped
Salt and pepper to taste

Chop and thoroughly mix all ingredients. Start in cold water. Boil for 1 hour or more. Add enough beef stock 10 minutes before serving to make 10 gallons. Parsley may be added as a garnish just before serving. Many other vegetables may be substituted for those indicated.

MEAT DISHES

(Includes poultry, game, and omelets)

46. Bacon and cabbage

15 pounds bacon, sliced
25 pounds cabbage
Salt and pepper to taste

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Place the washed and cleaned cabbage in the boiler with sufficient cold water to cover it. Place bacon on top of the cabbage and boil briskly about 20 minutes. To prevent discoloration of the cabbage the boiler should be uncovered during the process of cooking. Serve hot with the bacon on top of the cabbage.

47. Bacon, fried

22 pounds bacon, issue, or 24 pounds bacon, breakfast

Cut about five slices to the inch. If dry salt, issue, bacon is used, place in a bake pan containing boiling water, boil for 5 minutes, then drain off water. Fry on a hot range or in a quick oven. Stir occasionally so that all the bacon is thoroughly cooked. If served with eggs or hot cakes, etc., 10 pounds bacon are sufficient.

48. Bacon, simmered

22 pounds bacon, issue, or 25 pounds bacon, breakfast

Cut into pieces weighing about 5 pounds each. Wash thoroughly and place in cold water. Bring to boil, then reduce temperature and simmer for 2 hours. Slice and serve.

49. Beef a la mode

35 pounds beef, fresh (from less tender cut)
2 pounds bacon or pork
1 pound flour, browned in ½ pound butter or other fat
5 gallons beef stock
2 pounds carrots, diced
6 pickles, issue, large
3 cans tomatoes, no. 3 cans
1 clove garlic, chopped fine
Salt and pepper to taste

Cut the beef into pieces weighing about 5 pounds each and rub with salt and pepper, allowing ½ teaspoon salt and ¼ teaspoon pepper to each pound of meat; cut the bacon (or pork) into strips about the thickness of the little finger and the length of the pieces of beef, using a narrow-bladed knife. Cut 4 equally spaced slits in each piece of the beef, parallel with the grain. Insert in each slit one piece of bacon, rolled in garlic and cayenne pepper, and one slice of pickle. Make a gravy of the flour, fat, tomatoes, and beef stock. Put the meat in a pan, pour the gravy over it, and place the carrots around it. Cook slowly in a slow oven (200°–250° F.—20 count) for about 3 hours or until well done. Remove meat from oven, slice across the grain, replace in the gravy and cook a little longer, or slice and place on a platter with the gravy poured over it. Serve with hot gravy. The gravy should be very spicy; therefore, season it well with garlic, bay leaves, or Worcestershire sauce.

50. Beef, braised (pot roast)

45 pounds beef, fresh (from less tender cut)
8 pounds onions, chopped
1 pint vinegar
Salt and pepper to taste

Cut the beef into pieces weighing about 5 pounds each. Wipe with a damp cloth. Sear until well browned on all sides. Season. Place in a large Dutch oven or camp kettle or any covered utensil. A heavy utensil is best. Add

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the chopped onions and vinegar. If the roast is well covered with fat, basting is not necessary. If the beef is lacking in fat, it is a good practice to lard with strips of fat or place a layer of fat on top. About 2 pounds of fat pork or bacon are required for this. This added fat improves the flavor, melts, and bastes the roast. Cook in a slow oven (200°–250° F.) or on top of stove until tender. This will require 2 to 5 hours, depending on tenderness of beef used. The beef should be turned three or four times while cooking. When done, remove from utensil and slice. The roast may be served in either of two ways: Make a thick gravy in the utensil in which the beef was roasted and pour this gravy over the sliced beef on platters, or make a gravy of the desired thickness and serve separately.

51. Beef, braised, with vegetables

40 pounds beef, chuck roast (not boned)
8 pounds carrots, sliced
8 pounds onions, sliced
8 pounds celery, cut in bits
8 pounds turnips, sliced
1 clove garlic, chopped fine
3 pounds flour
Salt and pepper to taste

Cut the meat into pieces weighing about 5 pounds each, wipe it with damp cheesecloth, and roll in flour. Place vegetables in sufficient salted cold water to barely cover them and boil until soft, then rub them through a colander or coarse strainer. Sear the meat on all sides. After the meat is seared, transfer it to a kettle or kettles. If the beef is lean (lacking in fat), it is well to cut about 2 pounds of fat pork into strips, or use sliced bacon, and lay on top of the beef. This keeps the roast basted. Pour the vegetables and their liquid over the meat, together with any preferred seasoning. Cover tightly and let it simmer slowly for 4 or 5 hours, turning twice. After the meat is cooked, remove from kettle. Thicken the liquid remaining in the kettle by adding flour, and pour it over the meat.

52. Beef, corned

35 pounds corned beef

Wash the meat in warm water and, if it has been in brine until too salty, cover it with cold water and bring slowly to a boil. Drain off the water, cover again with fresh cold water and reheat. As soon as the liquid bubbles, reduce the heat, add a few whole peppers, and continue cooking slowly (always below the boiling point) for 2 or 3 hours, according to quality and quantity of beef, until the meat is tender. Keep the meat closely covered during the cooking process, and turn it when partly done, adding hot water from time to time so as to keep it completely covered. Carrots, parsnips, and potatoes may be added during the cooking process, if desired.

53. Beef, corned, preparation

4 gallons water
2 pounds sugar
8 ounces saltpeter
16 pounds salt
60 pounds beef, fresh (brisket preferred)

Dissolve the salt, sugar, and saltpeter in the water and boil for about 15 minutes to make a brine: Pour brine into a 15-gallon keg and allow to cool.

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The brine should be prepared in the evening, so that it will have time to cool thoroughly before the meat is put in. Cut the meat into pieces weighing about 5 pounds each and probe each piece with a steel at 1-inch intervals to allow the free penetration of the brine to all parts. Place the meat in the brine and keep it at a temperature from 50° to 60° F. for 7 to 9 days. While in the brine, the meat should be removed at least 3 times, alternating the upper and lower pieces. If the meat used in hot weather is not refrigerated beef, it should be packed in cracked ice for 12 hours before corning. The above recipe should produce 60 pounds of corned beef.

To make spiced corned beef, place in the center of each piece of beef a small piece of garlic and add to the brine 1 ounce each of cloves, whole peppers, and bay leaves.

54. Beef, curry of

45 pounds beef, fresh
1 pound flour
2 ounces curry powder
Salt and pepper to taste

Cut the beef into 1-inch cubes and place in a bake pan. Cover with cold beef stock or water and season to taste with curry powder (usually about 2 ounces of curry powder is used). Cook in a slow oven (200°–250° F.—18 to 20 counts) about 3 hours. When nearly done thicken slightly with a flour batter. Serve hot.

55. Beef dressing

10 pounds beef scraps of any kind
14 pounds bread
2 pounds onions, chopped
1 gallon beef stock
1 ounce sage
Salt and pepper to taste

Run the meat scraps through a chopper, soak the bread in cold water and remove excess water by squeezing, mix the meat and bread with the onions, season with sage to taste, add sufficient beef stock to make about the same consistency as hash, and spread 2 or 3 inches deep over the bottom of a well-greased pan. Spread a little grease over the top and bake for 40 minutes in a medium oven (325°–400° F.—12 to 16 counts). Serve hot with meat and gravy.

Do not leave on the stove as this causes the dressing to become dry and hard.

56. Beef, dried, chipped, or sliced on toast

12 pounds chipped or sliced dried beef
2 pounds fat, butter preferred
1 pound flour, browned in fat
4 cans milk, evaporated
2 bunches parsley, chopped fine
½ ounce pepper
4 gallons beef stock
130 slices bread—about 12 pounds

Melt the fat in the pan and add the flour. Cook a few minutes to brown the flour. Add the milk and beef stock, stirring constantly to prevent lumping. Add the dried beef and cook 5 minutes. Add the parsley and pepper. Serve hot on toast.

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57. Beef fricasse

45 pounds beef, fresh (from less tender cut)
2 pounds onions
1 pound flour
3 pounds fat, butter preferred
3 gallons beef stock
Salt and pepper to taste

Heat the fat in a bake pan. Add the beef, diced into 1-inch cubes, and onions. Brown on top of the range or in a quick oven (400°–450° F.—9 to 12 counts) for about 20 minutes. Sift in the dry flour and continue cooking for about 5 minutes. Add sufficient beef stock to nearly cover the meat and mix thoroughly. Cook on top of the stove or in a slow oven (200°–250° F.—18 to 20 counts) until well done.

58. Beef fritters

25 pounds cooked beef
8 pounds bread
3 pounds onions, minced
1 pound flour
Salt and pepper to taste

Soak the bread and remove the excess water by squeezing with the hands. Grind the meat fine and add the bread and minced onions and mix all together. Mold into cakes of about 3 ounces each, roll in flour, and fry in deep fat until brown. Serve hot with tomato sauce (recipe 146). The fritters may be improved by dipping in egg batter before rolling in flour.

59. Beef hash

25 pounds potatoes
5 pounds onions
25 pounds meat scraps, fresh or cooked
10 quarts beef stock
1 clove garlic
Salt and pepper to taste

Chop the ingredients fine and add the beef stock until the mixture is of the consistency of ordinary mush and place about 3 inches deep in a well-greased pan. Smooth the top and grease lightly. Bake in a quick oven (400°–450° F.—9 to 12 counts) for 1½ hours, or until done. Scraps of beef or pork, or a mixture of both, or corned beef may be used for making hash.

60. Beef hearts, stuffed

32 pounds beef hearts
10 pounds bread crumbs
3 pounds onions
½ pound fat
1 gallon beef stock
2 pounds bacon, sliced
Salt and pepper to taste

Wash and clean the hearts and allow to drain. Chop and brown the onions. Soak the bread crumbs, squeeze out excess water, and mix with the onions. Season to taste with thyme and stuff the holes in the hearts with the dressing. Place the hearts in a bake pan with a slice of bacon on top of each, and bake in a medium (325°–400° F.—12 to 16 counts) oven. After the hearts have become sealed so as to retain the juices, the temperature of the oven should be gradually reduced. Cook until done, allowing 30 minutes to the pound and considering the weight of individual hearts. Slice thin and serve.

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61. Beef loaf

20 pounds beef, fresh	2 or 3 quarts beef stock
5 pounds bread crumbs	5 pounds bacon
2 pounds onions	1 clove garlic
1 pound flour	Salt and pepper to taste

Grind the meat and onions in a grinder. Soak the bread in water and then squeeze out excess water. Mix the meat, bread crumbs, and onions together. Make into loaves about 4 inches wide by 3 inches high and as long as the pan is wide. A loaf of this shape can be cut into pieces of attractive size and about the proper size for the individual and the pieces will hold their shape. Then make a batter of the flour and beef stock, rubbing this over the loaves. Place in a hot oven (450°–500° F.—8 counts) for about 10 minutes, or long enough to produce a crisp brown crust, then reduce heat to that of a slow oven (200°–250° F.—18 to 20 counts), and bake for about 1 hour. A slice of bacon may be placed on the top of each loaf to improve the flavor. Serve hot with gravy.

In place of 1 pound of bread crumbs, 1 pound of tapioca may be used to bind and furnish a moist loaf which will slice without crumbling.

Beef loaf may be served with tomato sauce, if desired.

62. Beef potpie

20 pounds beef, fresh or left-over meat	5 pounds turnips
17 pounds potatoes	5 pounds carrots
3 cans tomatoes, no. 3 cans, or equivalent fresh tomatoes	1 clove garlic
	1 pound flour
5 pounds onions	Salt and pepper to taste

Cut the beef into 1-inch cubes, place in cold water, and bring quickly to a simmer. Add turnips and carrots cut in 1-inch cubes and simmer until these are nearly done. Add cut potatoes, chopped garlic, onions cut in 1-inch cubes, and the tomatoes, and finish cooking. Thicken slightly with flour batter and cover with raw biscuits (recipe 285). Serve as soon as the biscuits are done.

63. Beef, roast

45 pounds beef, fresh

This recipe is for cooking the tender cuts of beef. The less tender cuts should be braised, if a roast is desired.

Cut the beef into pieces of about 5 pounds each and wipe with a damp cloth. Sear until all sides are well browned. If the beef is lean (lacking in fat), it is well to lard it with about 2 pounds of fat pork, cut into strips, or lay these strips over the top. Sliced bacon may be used. This improves flavor and bastes the beef while roasting. Place in pan with fat side up. After searing cook in a slow oven (200°–250° F.—18 to 20 counts) for about 1¾ hours (about 20–22 minutes per pound per piece, see par. 92). If in larger pieces than 5 pounds, more time is required; however, for 5-pound pieces the time of 1¾ hours after searing should not be greatly exceeded as roasting longer than this, or allowing the roast to remain in the oven after it is done, tends to make the finished roast dry and hard. Roasting should be started so that the roast will be finished shortly before time to serve; for example, a roast for dinner started about 9:30 a. m. will be ready to carve at 11:30 a. m. Add very little water,

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only sufficient to keep from scorching at the bottom. When done, carve into thin slices, across the grain. Remove all chunks of fat, bones, and tendons, and render for soup stock. Serve hot with gravy made from the roast drippings (see recipe 133).

64. Beef rolls

14 pounds meat scraps, cooked, leftover
5 pounds bread crumbs
2 pounds onions, browned
1 ounce chili pepper

Pass the meat scraps through a chopper. Soak the bread crumbs and squeeze out the excess water. Mix well the meat, bread, and seasoning of salt, browned onions, and chili pepper. Make a pie crust or rich biscuit dough rolled into long strips, using recipe for dough for apple rolls (recipe 225). Spread the meat-and-bread mixture about ½ inch thick over the dough. Roll up in lengths equal to that of the bake pan, brush top with beaten eggs, and bake in a slow oven (200°–250° F.—18 to 20 counts) for 1 hour.

65. Beef, simmered

45 pounds beef, fresh (from less tender cut)
3 ounces salt
1 ounce pepper

Cut the beef into pieces weighing about 5 pounds each, wipe with damp clean cloth. Put in boiling water deep enough to cover and keep the water boiling for 15 minutes. Add salt and pepper. Reduce temperature to the simmering point (see par. 91 *b*), and simmer about 3 hours or until tender.

66. Beef, soft roast

45 pounds beef, fresh
2 pounds onions
3 pounds flour
Salt and pepper to taste

Use meat from the chuck, brisket, shoulder, or any other less desirable part of the carcass and cut into 5-pound pieces. Make a gravy of beef stock and flour batter (recipe 136). Season well with salt and pepper. Put the meat and onions in the gravy and cook in a slow oven (200°–250° F.—18 to 20 counts) until tender. The gravy should cover the meat in the pan about ½ inch as in the preparation of beef à la mode. Slice the meat and serve on a platter with hot gravy poured over it. Serve with dumplings (recipe 82).

67. Beef, spanish

40 pounds beef, fresh (from less tender cut)
3 cans tomatoes, no. 3 cans
8 pounds onions, chopped
2 pounds bacon

Cut the beef into 1½-inch cubes and fry in a little fat for about 5 minutes. Pour off the fat and add the tomatoes and onions. Add sufficient beef stock to cover the meat, season to taste with salt and pepper, and allow to simmer for 2 hours. Serve hot.

If desired, season while cooking, with 1 cup worcestershire sauce.

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68. Beefsteak

45 pounds beefsteak, fresh, or 35 pounds if boned
2 pounds fat
2 pounds flour

Cut the steaks into pieces weighing about 3 ounces each, and make tender, if necessary, by beating each piece with the flat side of a cleaver. If the steaks are beaten, first place a small quantity of flour in a dishpan and season well with salt and pepper and roll each piece of steak well in the flour. Fry in shallow fat or in deep fat, if preferred.

69. Beefsteak, hamburg

40 pounds beef, fresh (raw)
5 pounds onions
Salt and pepper to taste

Use meat from the less tender cuts. Run the meat through a grinder twice. Chop the onions fine using a sharp knife. Mix meat and onions well and season with salt and pepper. Mold into steaks about 3 inches in diameter and about ½ inch in thickness. Fry on griddle or clean stove top. Serve hot with gravy, or in hamburger sandwiches. (See recipe 298.)

This recipe will be improved by the addition of 12 eggs to the meat-and-onion mixture.

70. Beefsteak and mushrooms

45 pounds beef, fresh, or 35 pounds if boned
2 pounds butter
2 pounds flour
6 cans mushrooms, no. 2 cans
Salt and pepper to taste

For the steak.—Prepare and cook the beefsteak as in recipe 68.

For the sauce.—While the steaks are cooking, place the butter in a frying pan and heat until smoking hot, then introduce the flour slowly, stirring continuously to prevent lumping and scorching. When the butter and flour mixture becomes smooth, add to it the mushrooms and their liquid and continue cooking for 5 minutes. Place the cooked beefsteak on platters and cover with the mushroom gravy containing the mushrooms. Serve hot.

71. Beefsteak and onions

45 pounds beef, fresh, or 35 pounds if boned
20 pounds onions, sliced
2 pounds fat
Salt and pepper to taste

Prepare and cook the beefsteak as in recipe 68. Peel and slice the onions. Brown in hot fat. Season with salt and pepper. Serve the steak hot on a platter smothered with the onions.

72. Beefsteak potpie

30 pounds beefsteak, fresh, or cooked, cut in small portions
3 gallons beef stock
4 pounds onions, chopped and browned
1 clove garlic

If fresh steak is used, season the meat with pepper and salt, roll the small pieces of steak in flour, and fry in fat. Remove the cooked steak, add 1 pound

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of flour to the frying fat and brown. Add slowly the 3 gallons of stock to make a thin gravy, then add the onions. Pour this onion gravy over the steak.

If cooked steak is used, the onion gravy is made by adding 2 pounds flour to 2 pounds hot fat then adding the onions.

Make a regular biscuit dough (recipe 285)) using about 10 pounds of flour. Cut into biscuits, place them over the top of the steak and gravy, and allow them to brown in the oven. Serve hot.

73. Beef, turkish

25 pounds beef, fresh
9 pounds rice
4 pounds fat
2 pounds flour, browned in fat
4 pounds onions, chopped and browned
5 gallons beef stock
1 pound flour, for rolling meat
Salt and pepper to taste

Beef from the less tender cuts may be used for this recipe. Make a batter of the flour and melted fat, adding the stock and onions to make a gravy. Cut the meat into 1-inch cubes. Season with cayenne pepper, salt, and a little garlic, roll in flour, and fry. After the meat is fried, put immediately into the gravy and allow to simmer for 2 hours. While cooking it may be necessary to add a little more stock. Meanwhile boil the rice (see recipe 209) and place around a platter, making a nest in the center into which the stew is poured.

74. Brains

25 pounds beef brains
8 pounds onions, diced
5 pounds bacon, diced

Clean and wash the brains well in cold water, and dice them into about ½-inch cubes. Fry the bacon to a golden brown and add the brains. Cook in a moderate oven (250°–325° F.—16 to 18 counts) about 30 minutes, after which add diced onions and season well with chili powder and salt. Cook about 30 minutes longer. Serve hot on toast.

75. Brains and eggs

20 pounds beef brains
3 pounds bacon
50 eggs
Salt and pepper to taste

Clean and wash the brains well in cold water, and dice into about ½-inch cubes. Dice the bacon into small cubes or run it through a meat grinder. Fry the bacon until brown. Add the brains and fry until nearly done (about 45 minutes). Add the eggs, beaten slightly, and fry about 10 minutes more. Season to taste with salt and pepper. Serve with dry toast.

This preparation may be enriched by the addition of more eggs and reducing the amount of brains in proportion.

76. Chicken, creamed

25 pounds chicken (fowl) dressed, undrawn
10 pounds veal, diced
1 dozen eggs
2 cans pimento, no. ¼ can
4 pounds flour
10 cans milk, evaporated, diluted with 6 quarts water (preferably from the boiled chicken)
2 pounds butter, or 1 pound butter and 1 pound vegetable shortening
Salt and pepper to taste

Singe and draw the chickens, cut into fourths, place in pan with the veal, cover with cold water, and boil until chicken meat falls off the bones. Remove

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bones (be careful not to leave splinters of bone in the finished product), dice the chicken meat and thoroughly mix with the diced veal. Hard-boil the eggs, dice, and add to the meat.

Make a cream sauce using the butter, flour, milk, and broth from the boiled chicken. Season to taste. Slice pimento into strips (thin), add to cream sauce, and pour the sauce over the meat and eggs. Serve on toast or mashed potatoes.

NOTE.—The addition of two no. 1 cans of mushrooms will improve this dish. Also, any left-over cooked chicken which may be on hand may be used in place of fresh chicken.

77. Chicken, curry of

45 pounds chicken (fowl) dressed, undrawn
2 ounces curry powder
10 pounds rice
2 quarts flour (if desired for batter)

Singe chickens over hot flame to burn off small feathers. Cut each chicken into about 10 or 12 pieces (natural divisions), wash well, and place in a large bake pan on top of the range, covering with about 3 inches of water. When it reaches the boiling point, reduce the heat and allow to simmer 2 hours or until tender. Season to taste with salt and pepper after the chicken has cooked about 1 hour. Meanwhile make a paste of the curry powder and about 1 quart of broth, taken from the pan after the chicken is half done, and add this paste to the chicken. If desired, the chicken broth may be thickened by the addition of a flour batter (recipe 132). Serve on platters garnished with boiled rice. (See recipe 209.)

78. Chicken fricassee

60 pounds chicken (fowl) dressed, undrawn
4 pounds butter or vegetable shortening
2 pounds flour
4 cans milk, evaporated, diluted by 4 pints water or 4 quarts fresh milk
Salt and pepper to taste

Cut each chicken into about 12 pieces (natural divisions). Cover with water, season well with celery salt, and allow to simmer until tender. Remove the chicken and make a gravy, using 1 pound butter, 1 pound flour, and the water in which the chicken was cooked. Pepper and salt the chicken well, fry in shallow fat or roll in flour, and fry in deep fat. Put into the gravy when fried. Before serving add the milk and the remainder of the butter. Care should be taken to break up the chicken as little as possible. Serve on a platter with or without rice. Old fowls may be utilized to advantage by this recipe.

79. Chicken, fried

70 pounds chicken (fryers or broilers) dressed, undrawn
10 eggs, beaten
3 pounds cracker meal, or flour, or bread crumbs
5 pounds fat

Fowls over 6 months' old should not be fried. Remove pin feathers by singeing over hot blaze. Divide each chicken into about 10 pieces (natural divisions). Fry in shallow fat, or in deep fat. If fried in deep fat, dip each piece in the beaten eggs and then in the cracker meal. If the mixture does not adhere to the pieces sufficiently, repeat the operation. Drain well in a colander and

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keep hot until served. In case older chickens are used, which are large and possibly tough, fried pieces should be placed in a bake pan with about 2 inches of water, the pan covered and placed in a slow oven to steam for about 40 minutes.

80. Chicken, roast

65 pounds chicken, dressed, undrawn
4 pounds onions, minced, browned
2 pounds fat, butter preferred
15 pounds bread crumbs
2 pounds flour

Singe, then clean the chicken well, saving heart, liver, and gizzard, which should be cooked and then minced for use in gravy or dressing. To make the dressing moisten the bread crumbs with water, mix with onions and giblets and season with pepper and salt, sage, thyme, or other spices. The bread may be soaked in oyster liquor and oysters added to the dressing. Celery, currants, or raisins may be used instead of onions. Lemon juice or nuts may be added. This dressing may be used with any fowl or fish. Stuff the chicken well with dressing. Sew up with strong thread and tie wings down to the body. Make a batter with the flour and fat, season with salt and pepper and rub the chicken with it before placing in oven. Roast in a slow oven (200°–250° F.—18 to 20 counts). After the chicken has been in the oven about 20 minutes, add a little hot water and baste every 15 minutes until done. This generally requires about 2½ hours, depending upon the quality of the fowl. Last few minutes of cooking should be at a high heat to brown the outside of the chicken. Carve and serve hot with gravy (recipe 134).

81. Chicken stew with dumplings

50 pounds chicken, dressed, undrawn
Salt and pepper to taste

Singe and clean the chicken well and cut into 10 or 12 pieces (natural divisions). Cover with cold water and simmer until nearly done (tender). Then thicken the stew slightly with a flour batter (recipe 132), season to taste with salt and pepper, add the dumplings, and allow to cook 10 or 15 minutes depending on the size of the dumplings. Dumplings may be made in accordance with the following recipe:

82. Dumplings

9 pounds flour
¾ pound fat
3 ounces baking powder
3 ounces salt
Water to make a soft dough

Sift the flour, baking powder, and salt together three times. Mix the fat into the flour and add enough water to make a soft dough. Roll out on a well-floured board to about ¼ inch thickness. Cut into strips about 1 inch by 3 inches. Drop dough into boiling chicken broth and boil 20 minutes. Serve with the chicken.

Dumplings may also be in biscuit form made by rolling the dough and cutting with a biscuit cutter.

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83. Chili con carne

20 pounds meat scraps, fresh preferred, but may be cooked
6 ounces chili peppers, ground
8 pounds chili beans (small red beans) simmered
4 cloves, garlic
2 ounces chili powder
2 cans tomatoes, no. 3 cans
2 gallons beef stock

Simmer the beans until soft. Run ⅔ of simmered chili beans through a food grinder. Trim all the fat from the meat and chop into ½-inch cubes, fry, cover with about 1 inch of beef stock, add the ground chili pepper and the chili powder, and salt to taste. Mix with the ground beans, then add the remaining third of the beans whole, the garlic, and tomatoes. While cooking it may be necessary to add more beef stock to replace that lost by evaporation. When ready to serve, there should be sufficient beef stock to cover the preparation. Baked beans may be substituted for chili beans.

84. Chuck steak with onions

40 pounds chuck steak
25 pounds onions
3 pounds fat
Salt and pepper to taste

Peel and slice the onions. Brown in hot fat. Season with salt and pepper. Pound flour into the steaks to make them tender. Brown the steaks on both sides quickly in hot fat. Reduce the heat and cook slowly for 20 minutes or until well done. Season with salt and pepper. Serve the steaks on a platter with the onions around them.

85. Duck, roast

Prepare in the same manner as roast chicken (recipe 80).

86. Game, small

Pigeons, doves, etc., for Army messes should be made into potpies. They may also be prepared in the form of a stew and served on toast.

87. Goose, roast

Prepare in the same manner as roast chicken (recipe 80).

88. Ham, baked

40 pounds ham

Prepare ham the same as for simmered ham. If the ham is very salty, let soak for several hours in fresh water. Then change water and parboil until nearly done. Dredge the ham with cracked meal, sugar, allspice, and cinnamon, and dot the surface with whole cloves. Pour 1 quart of hot water in the bottom of baking pans, basting occasionally. Bake in a moderate oven for about 40 minutes.

89. Ham, simmered

40 pounds ham

Wash and scrape the ham. If the ham is very salty, let soak for several hours in fresh water. Then change the water. The water in which hams are cooked

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should never be allowed to reach the boiling point. Place hams in near-boiling water (enough to cover) 5 to 10 minutes, after which reduce the temperature to 180° F. by introducing cold water, and simmer until the hams are properly cooked. This process requires about 20 minutes to the pound. If two or more hams are simmered in the same vessel, the time of cooking should be computed on the largest ham. Skim all the impurities from the water as they arise. Let the hams cool in the water in which they are cooked.

Mold, if present, may be removed from ham by wiping with a clean cloth dampened with vinegar. The water in which the ham was cooked may be used to cook cabbage, spinach, etc.

90. Ham and tomatoes

35 pounds ham
3 cans tomatoes, no. 2½ or no. 3 cans
1 pound celery
1 gallon stock
2 pounds onions
2 pounds peppers, green, sliced
Salt and pepper to taste

Clean and wash the vegetables and dice or mince them. Cut the ham in ¼-inch slices. Place in baking pans one layer of ham and a layer of minced vegetables. Repeat this until the pans are filled. Pour over the stock well seasoned, place in oven, and let cook about one half hour, or until ham is thoroughly cooked.

91. Ham, smothered

35 pounds ham
¼ ounce cloves, whole
1 pound sugar, brown
5 pounds bread crumbs
1 gallon milk
2 pounds onions, chopped

Trim off the rind or skin from hams and wipe with a clean cloth. Cut them into slices about ¼ inch thick and put in a bake pan, cover with boiling water and cook at a simmering temperature from 35 to 40 minutes. Drain off the water, place over the top the cloves, onions, and bread crumbs, and add the milk. Bake in a moderate oven (250°–325° F.—16 to 18 counts) for about 45 minutes or until the top is crisp and brown.

92. Hamburger

See Beefsteak, hamburg (recipe 69).

93. Hash, chop suey

7 pounds bacon, chopped fine
8 pounds onions, chopped fine
17 pounds beef, cooked, coarsely ground
17 pounds turnips, cooked and chopped
5 cans corn, no. 2 cans
2 ounces chili powder
2 gallons beef stock
4 cans tomatoes, no. 3 cans
4 pounds celery, diced
Salt and pepper to taste

Place the bacon in a large bake pan and cook in the oven until well browned, add the onions and fry, but do not allow to brown. Add the other ingredients and bake for 1 hour. The addition of worcestershire sauce improves the flavor.

94. Liver and bacon

20 pounds liver, beef, sliced
10 pounds bacon, fried
10 pounds onions, browned
2 pounds flour

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Slice the bacon thin, about 5 slices per inch, and simmer for 5 minutes. Remove from water, roll the slices of liver in flour, and fry quickly in the bacon fat. Brown the onions and put on liver. Place fried bacon around the onions and liver. Season to taste with salt and pepper. Serve hot.

95. Meat loaf

Same as for beef loaf (recipe 61) except that up to one half of the beef may be replaced with fresh or cooked pork. If pork is used the loaf should be baked not less than 2 hours.

96. Mutton, simmered

45 pounds mutton (from less tender cut)
3 ounces salt
1 ounce pepper

Prepare in the same manner as beef, simmered (recipe 65).

97. Mutton chops

45 pounds mutton loin
Salt and pepper to taste

Cut in chops weighing from 2 to 4 ounces and fry the same as beefsteak. Serve hot. (See recipe 68.)

98. Mutton potpie

Prepare in the same manner as beef potpie (recipe 62) using 20 pounds of mutton instead of beef.

99. Mutton stew

25 pounds mutton
40 pounds potatoes
7 pounds onions
3 gallons beef stock or water
1 pound flour

Cut the mutton into 1-inch cubes. Add sufficient beef stock or cold water to just cover the mutton and allow to simmer slowly for 1½ hours or until the mutton is done. Add vegetables and cook until done. Season to taste with pepper and salt and thicken slightly with a flour batter (recipe 132). Serve hot with or without dumplings (recipe 82). If dumplings are added, use only 20 pounds of mutton and 30 pounds of potatoes.

100. Omelet, plain

150 eggs
8 cans milk, evaporated, diluted with 8 pints water; or 8 quarts fresh milk
2 pounds drippings or fat
Salt and pepper to taste

Mix the eggs and milk, season, and whip well, put drippings or other fat into the bake pan, and when the fat begins to smoke pour in the mixture, not more than 3 inches deep, and bake in a medium oven.

101. Omelet, cheese

Same as for plain omelet except that 3 pounds of cheese, chopped very fine, are added before cooking.

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102. Omelet, ham

Same as for plain omelet, except that 3 pounds of finely chopped cooked ham are added before cooking.

103. Omelet, tomato

Prepare in the same manner as the plain omelet, substituting 8 small cans of tomatoes for the 8 pints of water, or for 4 quarts of fresh milk.

104. Pig, roasted

70 pounds pig, little
10 pounds bread (dry preferred)
3 ounces sage
Salt and pepper to taste

Clean, stuff, truss, and skewer a suckling pig. Make 4 parallel gashes, 3 inches long, through skin on each side of backbone. Put on rack in dripping pan, brush entire surface with melted butter, sprinkle with salt, pour around 2 cups boiling water, and cover with oiled paper. Roast in a medium oven (200°–250° F.—18 to 20 counts) 3 hours, basting every 15 minutes with broth in pan. Remove paper after cooking 2½ hours and brush over with heavy cream. Remove to serving dish, put small red apple in mouth, cranberries in eyes and wreath around neck. May be garnished with nest-shaped hominy croquettes filled with apple sauce, cubes of cranberry jelly, and watercress.

Pigs weighing more than 35 pounds are not suitable.

105. Pork chops

35 pounds pork loin

Cut into chops about ½ inch thick and weighing from 3 to 5 ounces each. Fry in a bake pan or griddle without added fat until done. Use a high heat until chops are seared, then finish at lower temperature as high heat after searing will make the chops dry and hard. They may be breaded in flour or corn meal and fried with added fat. Serve with gravy made from the drippings (see recipe 134).

106. Pork cutlets

35 pounds pork cutlets
2 pounds flour
2 pounds fat

Dredge each cutlet with flour and fry in shallow fat. Season to taste with salt and pepper. Serve hot with gravy made from the frying (see recipe 134). Dipping in egg batter before flouring improves the product.

107. Pork, roast

45 pounds pork, shoulder, butt, or loin, or 40 pounds fresh ham
Salt and pepper to taste

Wipe the roast with damp cloth and cut into pieces weighing about 5 pounds each. Place in an uncovered roaster without water and rub with salt and pepper, allowing ½ teaspoon of salt and ⅛ teaspoon of pepper for each pound of meat. Sear in a hot oven (450°–500° F.—8 counts) for 15 minutes, or until

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nicely browned, then reduce the temperature to a moderate oven (250°–350° F.—16 to 18 counts). Cook until roast is well done, allowing 30 minutes per pound in addition to searing time for a 3- to 4-pound loin roast. Fresh shoulder and fresh ham require 25 to 30 minutes per pound plus the searing time.

108. Pudding, english beef

20 pounds beef, fresh (from less tender cut)
14 pounds flour
10 ounces baking powder
2 pounds lard
2 cloves garlic
Salt and pepper to taste

Run the meat through the grinder twice. Season and rub with cloves of garlic. Sauté lightly. Make a dough using the flour, baking powder, lard, and salt with enough water to make a stiff dough (recipe 285).

Roll out the dough about ¼ inch thick and 20 inches wide and spread with meat to about the same thickness as the dough. Roll the dough and meat tightly together and cut the roll in lengths ¾ as long as a 4-pound lard pail. Fill the lard pails with the pieces of roll, allowing space for expansion of dough in cooking. If no lids are provided, tie a cloth tightly over top of each pail. Place pails in a boiler containing enough boiling water to reach ⅓ the height of the pails, and boil for 5 to 6 hours. Maintain water at this level during cooking. Remove cans from boiler and allow to stand 10 minutes before emptying. Serve with brown or onion gravy.

109. Sausage, bologna, fried

27 pounds bologna sausage
12 eggs
2 cans milk, evaporated, diluted with 1 quart water, or 2 quarts fresh milk
3 pounds fat

Remove sausage casing and slice about ½ inch thick and dip in batter made by beating eggs and adding milk. Fry in deep fat. Serve hot. Bologna sausage may also be served cold with salad, or made into sandwiches.

110. Sausage, liver, fried

30 pounds sausage, liver
12 eggs
2 cans milk, evaporated, or 1 quart fresh milk
3 pounds fat
2 pounds bread, dry, ground, or crackers

If in small casings, cut in pieces about 2 inches long. Remove casings, dip in batter made by beating eggs and adding milk, roll in crumbs or cracker dust, and fry in deep fat. If in large casings, cut in ½-inch slices. Serve hot. Liver sausage may be served with a salad or for sandwiches.

111. Sausage, pork

(32 lb. mixture)

20 pounds pork, lean
12 pounds beef, lean
4 ounces salt
3 ounces pepper, black
½ ounce coriander
¾ ounce sage
½ pint vinegar
1 clove garlic

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Dice the pork in 1½-inch squares. Grind the beef and mix with the pork, add all the seasoning and mix well, then grind again. The more thoroughly the sausage is mixed, the better it will be. Mould into patties each about 4 ounces and fry without the addition of fat. Serve hot. If too dry, add water. If desired, 10 pounds of dry bread, or cracker crumbs or corn meal, may be ground in, but this does not improve the product.

112. Sausage, pork, in blankets

35 pounds link sausages
2 eggs, beaten
2 pounds lard
3 pounds flour
1½ ounces salt

Make a dough of the flour, lard, and salt and roll out as for pie crust (see recipe 257). Inclose 1 or 2 sausage links in a piece of dough, wash with the egg, and bake until a delicate brown.

113. Sausage, frankfurter

35 pounds frankfurter sausage

Place sausage in boiling water, but do not allow it to boil thereafter, as this causes the skins to crack, rendering them unsightly and injuring the flavor. Long cooking also injures the quality; therefore, the sausage should not be put into the water more than 15 minutes before serving. Serve hot.

114. Sausage, frankfurter, in blankets

Prepare in the same manner as pork sausage (receipe 112).

115. Short ribs of beef

65 pounds short ribs
3 pounds onions, chopped
3 pounds carrots
1 pound fat
2 tablespoonfuls pepper
6 tablespoonfuls salt
6 cans tomatoes, no. 3 cans

Melt the fat in bake pan. Add onions and short ribs, cut into pieces containing 1 or 2 ribs, and brown well. Add tomatoes, carrots, and seasoning, and enough water to cover all ingredients. Cover the pan and cook slowly in moderate oven (250°–325° F.—16 to 18 counts) for 3 hours or until done. Serve hot.

NOTE.—If the quantity of carcass beef on hand does not provide sufficient short ribs and it is not desired to purchase any as a wholesale market cut, any shortage can be made up by using chuck meat.

116. Southern creoles

100 pork hocks, fresh, small (35 lbs.)
4 cans tomatoes, no. 3 cans
2 quarts tomato catsup
3 ounces pickling spices

Boil hocks for 30 minutes, then pour off the water and add the tomatoes, catsup, and spices, salt, and pepper. Bake until the meat is done. Pour the cooking mixture as a sauce over the hocks when served. Either strain the sauce to take out the pickling spices or cook spices in a small bag so that they may be removed before serving. Serve hot.

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117. Spaghetti, italian style

10 pounds meat, diced, beef preferred (fresh or left over)
1 pint cooking oil or bacon drippings
2 pounds onions, chopped
3 cloves garlic, chopped
1 can tomatoes, no. 10 cans, or 4 cans, no. 2½ or no. 3 cans
1 quart tomato pulp or tomato catsup
8 pounds spaghetti
Salt and pepper and paprika to taste

Heat the oil or fat and brown the onions and garlic, add meat, and brown. Add tomatoes and catsup. Salt and pepper to taste. Simmer until sauce begins to thicken and add paprika to give bright red color. Put spaghetti in boiling salted water and boil 20 minutes or until done. Drain spaghetti and run enough cold water over it to make it firm and keep from becoming a doughy mass but do not chill. Pour the hot sauce over it and serve. Grated cheese may be sprinkled on top.

118. Spareribs

55 pounds spareribs

Cut the spareribs into pieces of 2 or 3 ribs each. There are two principal methods of cooking spareribs:

With sauerkraut.—Place the spareribs on a rack in a bake pan and sear about 15 minutes or until nicely browned in a hot oven (450°–500° F.—8 counts). Remove spareribs and rack and pour off drippings but save these. Place four no. 10 cans, or 16 no. 2½ cans, or 4 gallons of fresh sauerkraut in the same bake pan and pour the drippings from the searing over the sauerkraut. Place the seared spareribs on top of the sauerkraut, season highly by sprinkling with pepper, salt, and a little ground sage, and bake in a slow oven (200°–250° F.—18 to 20 counts) for 1 hour. If the spareribs become hard and dry, this can be corrected by covering the pan for the last 15 to 30 minutes of baking and the steam will soften them. Any excess liquid makes excellent soup stock.

With cabbage.—Drop the spareribs into boiling water, then simmer for 30 minutes. Bring the water to a boil again, drop in 50 pounds of cabbage (see recipe 168), and boil until cabbage is tender, about 20 minutes.

119. Stew, chop suey

25 pounds meat (pork, beef, or veal) cut in strips ¼ inch thick and 1 inch long
17 pounds onions, sliced
4 pounds celery, sliced crosswise
1 pint barbecue sauce (see recipe 137) or ½ pint molasses
2 gallons beef stock
8 pounds rice

Brown the meat, add the stock, and simmer until meat is tender. Add onions, celery, and seasoning and cook 30 minutes before serving. This should be served with 8 pounds of rice, steamed (see recipe 213).

120. Stew, pan

25 pounds beef, cooked and diced
25 pounds potatoes, boiled and diced
4 pounds onions, chopped
3 quarts beef stock
Salt and pepper to taste

Mix the beef, potatoes, and onions and season. Put in a well-greased bake pan, spreading to a depth of about 3 inches and add sufficient beef stock to

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cover the mixture. Bake in medium oven until nicely browned. It should not be as watery as the ordinary stew. All left-over potatoes, except fried, may be utilized in this stew. Left-over parts of roasts and gravy may be used. Serve hot.

121. Stew el rancho

20 pounds meat (beef, pork, or veal), fresh, without bone and with but little fat, cut in about 1½-inch cubes
17 pounds potatoes
3 cans tomatoes, no. 3 cans, or 10 pounds fresh tomatoes
5 pounds carrots, quartered lengthwise
7 pounds turnips, sliced across grain
7 pounds cabbage, cut in eighths
5 pounds onions, small whole
2 ounces chili powder

Place the meat, turnips, carrots, and tomatoes in a large pan of cold water and bring slowly to a boil. Simmer until the meat is tender and then add the remaining vegetables. Season with salt and chili powder, and simmer until vegetables are done. All ingredients should be thoroughly cooked but not broken into pieces. The liquid should cover all the solids by about an inch. The stew is improved by a bunch of parsley chopped fine and added just before serving, a few sprigs of parsley may be used for garnishing. Serve hot with the vegetables whole, if possible. Any kind of fresh meat and any vegetables may be used in this stew.

122. Stew, irish

25 pounds beef, fresh, or left-over beef
22 pounds potatoes, peeled
4 pounds onions
1 pound flour
2 gallons beef stock

Select cuts of beef suitable for stewing from less tender cuts and dice into ½-inch cubes or smaller, cutting all about the same size. Place in cold water and bring to the simmering point slowly. Cook at a simmering temperature until nearly tender. Dice the potatoes into 1-inch cubes, chop the onions, and add both to the meat. Add beef stock or water to cover the ingredients in the pan about 1 inch. Season to taste with salt and pepper and thicken with batter made of flour (recipe 132). Simmer until the vegetables are thoroughly done. This stew is improved by the addition of 3 pounds of diced carrots or turnips or 3 no. 3 cans tomatoes. To make a potpie out of this, cover with a biscuit dough (recipe 285) and bake in a medium oven (325°–400° F.—12 to 16 counts). To improve the appearance, the dough may be washed with a beaten egg, which will give a golden-brown color. Serve hot.

123. Tamales

14 pounds cooked meat scraps
1½ pounds corn meal
8 pounds flour
5 pounds mashed potatoes
3 ounces salt
2 ounces chili powder
1 clove garlic, chopped fine
1 quart beef stock

Run the meat through a chopper, add salt, pepper, garlic, and chili powder, and mix well. Add the beef stock. Mix the corn meal flour and potatoes with enough water to make a stiff dough. Roll out this dough ¼ inch thick, using flour for dusting. Cut the dough in long strips about 2½ inches wide. Place on each strip enough meat to form a core about ½ inch in diameter.

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Fold the sides of the strip together and seal by moistening the edges with water and pressing together. Cut the rolled strips into pieces about 5 inches long. Fresh meat may be used in making tamales, in which case the fat is cut off and the meat is cut into ½-inch cubes and cooked until well done in a small amount of fat. Then proceed as outlined above. Fry the tamales in deep fat. Serve hot.

124. Turkey, roast

Prepare in the same manner as roast chicken (recipe 80), substituting 70 pounds of turkey, undrawn, or 50 pounds of dressed and drawn turkey for the chicken.

125. Turkish stew

28 pounds raw lean meat
9 pounds rice
1 pound flour
1 pound fat
3 pounds onions, sliced
2 gallons beef stock
3 ounces cayenne pepper
1 bunch parsley
1 clove garlic, chopped fine
Salt and pepper to taste

Dice the meat into 1-inch cubes, roll in flour, and fry brown in shallow fat. Brown the onions and add the meat, cover with beef stock, and season with the cayenne pepper, salt, parsley, and a little garlic. Simmer on top of the range or in the oven for about 2 hours. Steam the rice until the grains may be crushed between the fingers but still retain their original form (see recipe 209). Make a border of the rice around the platter, leaving a dent into which the stew is poured. Garnish with parsley.

126. Veal cutlets

42 pounds veal
1 pound flour

Cut in slices weighing about 4 ounces each, roll in flour, and fry the same as beefsteak (recipe 68). Serve hot with cream gravy made from the frying (recipe 134).

127. White fricassee of veal

40 pounds veal

Wipe with a clean, damp cloth. Cut into 1-inch cubes and prepare by the same method as for white fricassee of chicken. Serve with dumplings. This will require from about 2½ to 3 hours to cook.

128. Veal, roast

42 pounds veal
1 pound fat

Prepare in the same manner as braised beef (recipe 51), except cook the veal thoroughly done.

129. Venison cutlets

40 pounds venison
1 pound flour

Prepare in the same manner as veal cutlets (recipe 126).

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130. Venison, roast

42 pounds venison, ham preferred
1 pound fat (suet preferred)
1 pound bacon (sliced in thin strips)

Cut into pieces weighing about 5 pounds each. Lard well every 2 inches, the strips of fat used for larding being well seasoned with pepper and salt, and, if desired, a little garlic. Roast in the same manner as beef, except that it should always be cooked until well done. Serve hot with gravy poured over it. Be careful to lard well or the cooked product will be dry.

Other parts of the venison carcass may be roasted in the same manner, but will require less cooking, depending upon size and thickness of the pieces. Parts not suitable for roasts may be utilized in steaks, hash, stews, and fritters.

131. Yorkshire pudding

10 pounds flour
8 ounces baking powder
12 eggs
2 ounces salt
Pinch cayenne pepper

Sift together three times the flour, baking powder, salt, and cayenne pepper. Add eggs, whipped to a foam, and sufficient water to make a dough somewhat softer than that used for biscuits. Drop the dough from the hand into the pan in which beef has been roasted, keeping the handfuls about 1 inch apart. Bake in a medium oven (325°–400° F.—12 to 16 counts). The above recipe may be improved by substituting milk for water.

GRAVIES AND SAUCES (see also par. 109)

132. Flour batter (for thickening liquids)

Flour
Water

The quantity of flour used will depend upon the quantity of liquid to be thickened and the thickness desired. One quart of water, mixed with 1 pound of flour will thicken to gravy consistency about 2½ gallons of liquid. The thickness of the liquid will also depend upon the length of boiling, after putting in the batter, as long boiling evaporates more of the moisture and results in thicker liquid. Care must be used in mixing the batter with the liquid as constant stirring is necessary to prevent lumping.

133. Gravy, brown

1 quart fat
2 pounds flour
2 gallons water

The gravy should be made in the pan used in roasting the meat, as only by this method can all the extractives lost from the meat be retained in the gravy. Brown gravy is made from the drippings of roasted meat or fowl and the frying of pork. One quart of fat will make 2 gallons of gravy. Take the fat in the roasting pan after the meat or fowl has been removed, heat to the smoking point and add enough flour to absorb the hot fat, stirring constantly to prevent burning and lumping. When the flour is brown, add cold water (about 1 gallon to the pound of flour used) and continue cooking and

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stirring until the gravy is smooth and of the desired thickness or consistency. Salt and pepper to taste. Serve hot. Brown gravy may also be made from stock by the same procedure, except that 2 quarts of stock is used instead of 1 quart of drippings; however, gravy made from stock is not nearly as palatable as that made from roast drippings.

134. Gravy, cream

1 quart fat
2 pounds flour
8 cans milk, evaporated, diluted with 8 pints water, or 1½ pounds powdered skim milk dissolved in 7¾ quarts water, or 2 gallons fresh milk

Cream gravy is made from the fryings of beef or fowl. Follow the same procedure as in making brown gravy, except that the flour is not browned and milk is used instead of water.

135. Gravy, giblet

This should be made only when poultry is roasted or fried. Chop the cooked gizzards, hearts, and livers of the fowls and add to a cream gravy made from the drippings. (See recipe 134.)

136. Gravy, stock

2 quarts stock
2 pounds flour
2 gallons water

Heat the stock to the boiling point, sift in the flour slowly, stirring constantly. If a brown gravy is desired, continue cooking until the flour is browned, then add the water and continue cooking and stirring until of the desired thickness, but if white gravy is desired do not brown the flour. Season with salt and pepper. Serve hot. This gravy should be made only when drippings or fryings are not available.

137. Sauce, barbecue

1½ pounds onions, browned to a crisp
5 ounces salt
1½ quarts vinegar
2 ounces pickling spice
1 ounce pepper, red
1 can tomatoes, no. 3 cans, or 1 quart tomato catsup
6 ounces sugar

Thoroughly mix all the ingredients except the sugar. Caramelize 4 ounces of sugar and put in 1½ quarts of water. This will make the water dark brown. Pour the sugared water over the whole and bring to a boil. Set in a cold place and, after the mixture has cooled, add 2 ounces of sugar.

138. Sauce, cranberry

17 quarts cranberries
6 pounds sugar

Wash and stem the berries, put in a boiler, cover with about 1 inch of cold water. Cover tightly and boil until berries break to pieces and cover themselves with their juice. Remove the lid and simmer for 30 minutes. If a sauce free of skins is desired, rub through a colander. Then pour into an earthen or wooden vessel and cool. Serve cold with chicken, turkey, or other kinds of meat.

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139. Sauce, cream, for codfish

2 pounds fat
7 cans milk, evaporated, or 23 ounces powdered skim milk dissolved in 5½ pints water
1 pound onions, minced
10 eggs, hard boiled, minced
1 pound pickles, minced

Thicken 1 gallon of boiling water with a flour batter (recipe 132) and season with pepper and salt. Bring to a boil and add the fat, milk, onions, eggs, and pickles; whip well and spread over the fish on the platter. The sauce may be improved by the addition of 6 or more hard-boiled eggs, chopped fine.

140. Sauce, plum pudding

1½ pounds sugar
1 tablespoonful lemon extract
½ pint vinegar
3 quarts water
4 ounces cornstarch or flour
1 can milk, evaporated, diluted with 1 pint water, or 3¼ ounces powdered skim milk dissolved in ¾ pint water
½ ounce salt

Dissolve the sugar in 3 quarts of water. Bring to a boil and add a batter made of the cornstarch or flour and ½ pint of cold water. Add the vinegar, milk, extract, salt, and a pinch of baking soda. Simmer until smooth.

141. Sauce, rhubarb

25 pounds rhubarb
5 pounds sugar

Wash the rhubarb and dice in ½-inch cubes and place in a boiler with about 1 inch of water. Cover tightly and simmer for about 1½ hours. Then remove the lid and allow the water to evaporate for about 1 hour. Sweeten with sugar and serve alone as a fruit sauce, or with roast mutton, lamb, or veal, or poured over plain cake. The sauce may be improved by adding other fruit or fruit juices.

142. Sauce, spanish, fish

2 pounds fat
4 pounds onions, minced
7 pounds tomatoes, minced
5 cloves garlic, mixed
5 ounces red pepper, ground
2 gallons beef stock
Salt to taste

Fry onions and garlic in shallow fat until well done, then place in double boiler with the tomatoes, beef stock, and seasoning, and heat thoroughly. Thicken slightly with a flour batter (recipe 132).

143. Sauce, sweet, chocolate

Same as sweet sauce, vanilla (recipe 145), except 8 ounces melted chocolate are used in place of ¼ cup vanilla extract.

144. Sauce, sweet, lemon

Same as sweet sauce, vanilla (recipe 145), except ⅛ cup lemon extract is used in place of ¼ cup vanilla extract.

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145. Sauce, sweet, vanilla

9 pounds sugar
1½ gallons water
8 ounces cornstarch
¼ cup vanilla extract
½ teaspoonful salt
¼ pound butter or vegetable shortening

Mix sugar and cornstarch, stir into the boiling water and boil until slightly thickened. Add butter, flavoring, and salt, and cook until of desired thickness, which will depend upon use. This sauce may be made richer by using milk in place of all or a part of the water. Variations of this sauce may also be made by adding cooked fruit (run through a grinder) or by caramelization of part of the sugar.

146. Sauce, tomato

10 cans tomatoes, no. 3 cans, or equivalent in fresh tomatoes
2 pounds onions, chopped fine
1 ounce cinnamon, ground
½ ounce cloves, ground
5 chili pods, chopped fine, or chili pepper ground
3 ounces salt
3 ounces sugar
2 pounds butter, or 1 pound butter and 1 pound vegetable shortening
1 pound flour
1 clove garlic, chopped fine

Boil slowly all the ingredients, except the flour and butter, in 2 quarts of water for 1½ hours. Remove from the range and run through a fine colander or sieve. Replace on the range. Heat the butter in a frying pan, add the flour, stir until smooth, and add it to the sauce. Excellent for fish, meats, or croquettes.

FISH AND SEA FOOD DISHES

147. Baked fish

50 pounds fish, fresh
5 pounds bacon or salt pork

Dress fish (see par. 26) and place in a bake pan containing about 1 inch of water with 1 to 4 slices of bacon over each fish according to size. Season well with pepper and salt. Bake in medium oven (325°–400° F.—12 to 16 counts) for 1 hour or until done, basting frequently. The entrails may be withdrawn from beneath the gills without opening the belly and the fish filled with dressing (see recipe 80). Fish weighing less than 2 pounds are not suitable for baking.

148. Codfish, salt, boiled

25 pounds codfish

Cut the fish into pieces weighing about 2 ounces each. Put in a boiler of cold water and boil for 15 minutes to remove the salt. Change the water and boil until done, ordinarily about 30 minutes. Serve hot with cream sauce (recipe 139).

149. Codfish cakes

17 pounds salt codfish
17 pounds potatoes, mashed
20 eggs
1 pound flour,
or 2 pounds cracker crumbs
2 pounds fat

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If whole cod is used, soak, remove the bones, and pass through a meat chopper. Mix with the potatoes and eggs, and season with pepper and salt. Mold into cakes weighing about 3 ounces each and roll in cracker crumbs or flour and fry in deep fat. Serve hot with tomato sauce (recipe 146). These cakes may be improved by dipping in egg batter before frying; the batter is made by mixing 12 eggs and 2 cans of evaporated milk diluted with 2 pints of water or 2 quarts of fresh milk, or 7 ounces powdered skim milk dissolved in 1½ pints water.

150. Fish, fresh, fried

50 pounds fish, fresh
1 pound corn meal or cracker meal
1 pound flour
2 pounds fat

Clean and slice (or split) into pieces not more than 1 inch thick. Season with salt and pepper, roll in flour and corn meal, and fry in deep fat until thoroughly browned. Serve hot with tomato sauce (recipe 146).

151. Oysters, fried

4 gallons oysters (selects) shucked (6 or 8 for each man, according to size)
30 eggs
7 pounds cracker dust
7 pounds fat

Dip oysters in egg batter and then in cracker dust. Take one oyster at a time between the hands, press flat, and lay in the hot deep fat. Fry until slightly brown. Serve hot with tomato or worcestershire sauce.

152. Oysters, scalloped

12 quarts oysters, standards, or shucked (about 6 oysters for each man)
3 pounds bacon
6 cans milk, evaporated, or 18 ounces powdered skim milk dissolved in 5 pints water
10 pounds bread, diced and toasted, or 10 pounds crackers

Dice the bacon and fry until crisp. Add the oysters and bring to a boil, then mix in the bread or crackers and simmer 15 to 20 minutes. Add the milk just before serving.

153. Salmon cakes

20 cans salmon, 1-pound cans
30 pounds potatoes, mashed
20 eggs
2 pounds cracker or bread crumbs
2 pounds fat

Mix the ingredients well, season to taste with salt and pepper, make into cakes about 3 inches in diameter, roll in flour, and fry in deep fat. Serve hot with tomato sauce (recipe 146).

154. Salmon hash

20 cans salmon, 1 pound cans
30 pounds potatoes, mashed
1 quart beef stock

Mix both ingredients well, adding a little beef stock. Season with salt and pepper, spread 3 inches deep in a greased bake pan and bake in a medium oven (325°–400° F.—12 to 16 counts) for 40 minutes or an hour. Serve hot.

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VEGETABLE DISHES

155. Asparagus

15 cans asparagus, No. 2 cans, or 20 pounds fresh asparagus
15 pounds bread, toasted

Canned asparagus.—Open the cans and heat (not boil) the contents. Serve hot on toast with a cream sauce (see par. 109 *a*) made from the liquid from the asparagus. Season with salt and pepper to taste.

Fresh asparagus.—Clean and wash asparagus and put in boiling salted water for 15 minutes. Drain and serve on toast as above.

156. Baked beans

18 pounds beans, dry
4 pounds bacon, sliced
1 pint molasses
1 pint catsup
2 ounces mustard, dry, or 6 ounces prepared
2 pounds onions, chopped
2 pounds tomatoes, fresh, or 1 no. 3 can

For serving as an additional vegetable, use one half of this recipe.

Wash and soak the beans for 4 hours or over night in cold water. Drain, place in hot water, and simmer for 2 hours. Drain and place beans in bake pan or covered earthen crocks. Mix in the chopped onions and tomatoes. Season to taste with salt and pepper. Place sliced bacon on top of the beans. Make a mixture of the molasses, catsup, and mustard, adding a little vinegar if dry mustard is used, and pour over the beans, cover the pan and bake in a slow oven (below 200° F.—24 counts) for 4 hours, or until tender. Serve hot.

In cold weather the soaking may be over night, in which case the 2-hour simmering will not be necessary. In hot weather the beans may sour if soaked when a cool temperature cannot be obtained. When this condition is met with, beans may be baked as follows:

Wash the beans in cold water, drain and place in cold water, simmer 45 minutes, drain and put beans in bake pan, mix in chopped onion and tomatoes. Season with salt and pepper. Place sliced bacon on top of the beans. Make a mixture of molasses, catsup, and mustard, and pour over the beans. Cover the pan and bake in a slow oven for 5 hours, or until tender. Serve hot.

157. Beans, canned

4 cans beans, baked, no. 10 cans, or 20 cans beans, no. 2 cans

For serving as an additional vegetable use one-half of this recipe.

Open the cans and empty into bake pans or, if they cannot be heated in the oven, place in boilers. They may be served after simply heating (requiring about 15 minutes) but will be improved by adding 2 bottles or one-half of a no. 10 can of catsup, also about 12 whole onions, ½ gallon of pickles, 2 or 3 pounds of sliced or cut bacon, 2 quarts of molasses, and 8 ounces of prepared (wet) mustard. The quantities of these additional ingredients may be varied according to what is on hand. The bacon should be laid on top of the beans, but onions, pickles, molasses, and mustard should be mixed through them. If bacon and onions are added, it is necessary to bake or cook the beans at least

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30 minutes. If this is done the temperature should be kept below the boiling point if in a boiler, and if in an oven at slow heat (200°–250° F.—18 to 20 counts).

NOTE.—In the absence of any other means of cooking, canned beans (as well as any other canned food) may be heated for serving by immersing the cans for about 15 minutes in hot or boiling water. The heat causes an internal expansion which may cause the hot contents to spurt out when the can is opened after removing from the hot water, and the cook who opens the cans must use care to avoid being scalded. If it is desired to prevent contamination of the water in which the unopened cans are heated, the labels should be removed and the cans washed clean before immersing.

158. Beans, dry, simmered

20 pounds beans, dry
4 pounds bacon, sliced, or ham hocks, or salt pork

For serving as an additional vegetable, use one-half of this recipe.

Wash the beans thoroughly, place in a boiler with about 4 gallons of cold water and bring to a boil, then skim and simmer for 4 hours or until done. After they have simmered about 2 hours, add the meat and season to taste with salt and pepper. Water added during cooking should be boiling hot. Serve hot.

159. Beans, lima, green or soaked, canned

4 cans lima beans, green or soaked, no. 10 cans, or 20 no. 2 cans
2 pounds bacon, sliced, or ham hocks, or salt pork

If the meat is not added the beans can be heated for serving in about 15 minutes (see note, recipe 157). If the meat is added, open the cans, add the meat, and simmer for about 1 hour.

160. Beans, lima, dry, simmered

15 pounds lima beans, dry
2 pounds bacon, sliced, or ham hocks, or salt pork

Wash the beans thoroughly and place them in a boiler with about 4 gallons of cold water, boil 10 minutes and skim. Add the meat and season with salt and pepper to taste, then simmer 4 hours or until tender. Serve hot.

161. Beans, string or snap, canned

4 cans beans, string (or snap), no. 10 cans, or 20 cans beans, no. 2 cans
3 pounds bacon, sliced

Empty the cans into a bake pan or boiler, add the bacon and simmer about 20 minutes. If necessary to heat the beans in the cans, the bacon may be simmered separately and added after the cans are opened.

162. Beans, string or snap, fresh

26 pounds beans, string or snap, fresh
3 pounds bacon, sliced

Cut off tips, then break the beans into pieces about 1 inch long, wash and place in a closed boiler with sufficient water to one-third cover them. Then add the bacon and season with salt and pepper to taste. Simmer for 1 hour, adding more water or beef stock, if necessary, to barely keep the beans covered. Serve hot.

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163. Beets, fresh, boiled

26 pounds beets

Clean the beets thoroughly but do not skin or cut off roots. Boil until well done, then hold under a faucet of cold water and rub the skins off with the hands and remove roots. Cut into slices or, if young and tender, serve whole. Serve hot with butter, cream sauce, or gravy (see par. 109). While washing and cooking be careful not to break the skins as to do so would cause bleeding.

164. Beets, canned

4 cans beets, no. 10 cans, or 16 cans beets, no. 2½ cans

If desired to serve as boiled beets, heat sufficiently for serving (see recipe 160) and serve hot with butter, cream sauce, or gravy (see par. 109); if desired to serve as pickled beets, prepare as in recipe 166.

165. Beets, harvard

3 cans beets, no. 10 cans, or 12 cans beets, no. 2½ cans, or 25 pounds beets, fresh
3 pounds sugar, granulated
3 ounces cornstarch
1½ ounces salt
1 quart vinegar
1 pound butter

If fresh beets are used, clean and boil until tender, then drain and remove skins and roots. Cut the beets into thin slices or cubes. Sift together the sugar, cornstarch, and salt, mix with the vinegar, and boil this sauce 5 minutes, stirring constantly to prevent scorching. Add the butter and, when melted and stirred in, pour the sauce over the beets which should be heated if cold. Let stand a few minutes to absorb the sweet-sour flavor of the sauce.

Serve alone as an additional vegetable, or with meats. If served with meats, use one-half of this recipe.

166. Beets, pickled

30 pounds beets
2 quarts vinegar

Boil the beets until done, then rub the skins off under cold water with the hand, cut into ¼-inch slices, and season with salt and vinegar. If desired, 1 pound of sugar may be added to the vinegar. Allow them to stand about 5 hours before serving.

167. Cabbage

When preparing cabbage take off dead and dry outer leaves. Slice about one-half inch off the stalk of each head and place the head in cool fresh water, being sure that stem end is immersed in the water for several hours. The cabbage will take up water through the stem as a flower would, and become cool and crisp. Cabbage should never be overcooked until it assumes a tan color. Cooked cabbage should always retain the natural green color. It should be cooked only long enough to make it tender. This requires only about 20 minutes for boiled cabbage. Always boil in an open kettle, as this allows strong odors to escape.

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168. Cabbage, bavarian

50 pounds cabbage
8 pounds salt pork or bacon
1½ quarts vinegar

Strip off outer leaves and remove the cores, cut into fine shreds, wash and soak, place in a boiler containing the pork or bacon, vinegar, and 2 gallons of water. Season with salt and pepper. Boil rapidly in an open boiler for about 20 minutes, adding boiling water, if necessary, to keep covered. Then thicken slightly with a flour batter (recipe 132) and boil for about 5 minutes longer. Serve hot.

169. Cabbage, boiled

45 pounds cabbage
8 pounds bacon or salt pork, or corned beef

Strip off the outer leaves, remove the cores, wash, quarter, and soak. Place in a boiler with sufficient water to cover. Add the meat, and season to taste with salt and pepper. Cook in an open boiler for 20 minutes, adding boiling water as required to keep the cabbage completely covered at all times. Serve hot.

170. Cabbage, fried

35 pounds cabbage, boiled
4 pounds bacon drippings

Chop the cabbage fine and add to it the bacon drippings. Season with salt and pepper. Cook on a range in a covered bakepan about ½ hour, stirring frequently to prevent burning. Serve hot.

Fried cabbage may also be made from finely chopped raw cabbage.

171. Carrots, baked

25 pounds carrots, fresh
2 pounds bacon drippings

Scrape and wash the carrots well, and place them in an open boiler containing sufficient cold water to cover. Boil until tender. Remove and place in a bakepan containing the bacon drippings. Season to taste with salt and pepper, and bake in a medium oven (325°–400° F.—12 to 16 counts) for about 20 minutes. Serve hot.

172. Carrots, candied

45 pounds carrots, fresh
1 pound butter
5 pounds sugar, granulated, or brown (brown preferred)
1 gallon beef stock, strained

Clean and scrape the carrots, and slice lengthwise. Boil, until medium done, about 20 minutes. Spread the slices in three layers in a bakepan, putting about one-third of the sugar and butter on top of each layer. Pour the beef stock over the whole and bake in a medium oven (325°–400° F.—12 to 16 counts) 40 minutes to 1 hour, or until well browned. Serve hot.

This recipe is sufficient for the main vegetable dish to take the place of potatoes. If served as an additional vegetable, use one-half this recipe.

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173. Carrots, mashed

30 pounds carrots, fresh
2 pounds bacon drippings
7 quarts beef stock

Scrape the carrots and cut into slices not more than one-half inch thick. Place in an open boiler containing the beef stock or water. Season with salt and pepper and simmer until tender. Add the bacon drippings and mash thoroughly. Serve hot.

174. Corn, canned

4 cans corn, no. 10 cans, or
20 cans corn, no. 2 cans
½ pound butter

Put corn in a boiler and season to taste with salt and pepper. Mix well, simmer until hot, and add the butter. If the corn is too thick, it may be thinned with milk or water. Serve hot.

175. Corn, fried

3 cans corn, whole kernel style, no. 10 cans, or 15 cans corn, no. 2 cans, or 20 pounds corn cut from roasting ears (corn on the cob) after cooking
1 cup green peppers, minced
½ pound butter
½ pound bacon drippings

Drain liquid from corn. Mince peppers. Heat butter and bacon drippings in bake pan until just below smoking point. Place green peppers (minced) in hot fat and fry 5 minutes. Add corn to pan and lower heat. Stir frequently. Serve when thoroughly heated. Care must be used to prevent scorching.

176. Corn fritters

3 cans corn, cream style, no. 10 cans, or 15 cans corn, no. 2 cans
24 eggs
2½ ounces salt
15 pounds flour
5 ounces baking powder
2 gallons milk or water

Beat the corn and eggs together thoroughly. Sift together the salt, flour, and baking powder three times. Add a portion of the liquid, then a portion of the sifted dry ingredients, stirring well. Continue until the dry ingredients are thoroughly mixed in, regulating quantity of liquid to make a thick batter which will just drop off a spoon. A thin batter makes a poor product. Using a large basting spoon, drop spoonfuls into hot fat and fry until brown. There are two methods of frying: (1) In hot fat about one-half inch deep; or (2) in fat deep enough to cover the fritters. Serve hot with sirup.

177. Corn, scalloped

4 cans corn, cream style, no. 10 cans, or 20 cans corn, no. 2 cans
1 pound butter
2 pounds flour
1 quart milk
4 pounds cracker or bread crumbs
Salt and pepper to taste

Make a white sauce (see par. 109) of the butter and flour. Let this partly cook, then add the milk and corn. Season to taste. Mix thoroughly, and put a layer of this mixture into a bake pan; over this put a layer of

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broken crackers or bread crumbs and repeat until pan is filled. Dot the top with a little butter or vegetable shortening. Bake in a medium oven (325°–400° F.—12 to 16 counts) about 30 minutes or until nicely browned.

178. Eggplant

30 pounds eggplant
9 eggs
2 pounds flour
3 pounds fat

Peel the eggplant and slice lengthwise. Beat the eggs well and add to them about 3 pints of water or milk. Season the eggplant with salt and dip it in the egg and water mixture, roll in flour, and fry in deep fat until browned. Place in a colander and drain before serving. Serve hot.

179. Greens

30 pounds greens
1 quart beef stock
9 pounds bacon

Wash in cold water, changing water at least 4 times to remove grit. Put the greens and bacon in 4 gallons of cold water and boil in an open boiler until tender, about 10 minutes. Serve hot, season to taste with salt, pepper, and vinegar or give the following additional preparation. Remove the bacon and strain the free water from the greens, chop greens fine and place in a well-greased bake pan, add beef stock to moisten, and bake in an oven for about one-half hour. Season with salt and pepper to taste. Slice the bacon and serve on top of the greens. Greens may be improved in appearance and taste by the addition of minced hard-boiled eggs in the serving dish. Excessive cooking will destroy their vitamin properties.

Beet tops, dandelion, spinach, turnip tops, and other greens may be prepared in the same way.

180. Hominy

3 cans hominy, lye, no. 10 cans
2 ounces salt

Place the hominy and salt in a boiler and simmer for 20 minutes. Season with pepper to taste. Serve hot.

181. Macaroni and cheese

8 pounds macaroni
4 pounds cheese, diced

Add the macaroni to 7 gallons of salted boiling water or beef stock and boil for 20 minutes. Strain the free water off and spread about one-third of the macaroni in the bottom of a well-greased bake pan, followed by one-third of the diced cheese, and continue in alternate layers until all of both ingredients are in the bake pan. Bake in an oven about 30 minutes, sprinkle with paprika, and serve hot. If desired, 2 or 3 pounds of toasted bread crumbs and 2 or 3 cans of tomatoes may be mixed with the cheese between the layers of macaroni.

182. Onions, boiled

20 pounds onions

Select small onions, peel, and boil whole until tender, from one-half to three-fourths of an hour and serve with cream sauce (see par. 109).

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183. Onions, fried

30 pounds onions
2 pounds lard or drippings
4 quarts beef stock

Peel and slice onions, put all ingredients in a bake pan on a hot fire. When the stock is all evaporated, the fat in the pan will be sufficient to brown the onions. Stir frequently and season to taste with pepper and salt. May be used to smother beefsteak or served separately as a vegetable.

184. Onions and grated cheese

25 pounds onions
2 pounds fat
2 pounds cheese, chopped fine

Peel and slice the onions and fry until well done. Mix the chopped cheese with the onions and bake in a quick oven (400°–450° F.—9 to 12 counts) for 20 minutes. Serve hot.

185. Parsnips, baked

30 pounds parsnips
5 pounds bacon
2 quarts beef stock

Scrape and wash the parsnips thoroughly and place them in a well-greased bake pan. Season to taste with pepper and salt and add the beef stock. Place strips of bacon over the parsnips and cover the pan to prevent evaporation. Bake in a slow oven (200°–250° F.—18 to 20 counts) for about 1 hour, or until tender. Serve hot.

186. Parsnips, mashed

30 pounds parsnips
2 pounds bacon drippings
7 gallons water

Scrape and wash the parsnips thoroughly and place in an open boiler containing the water. Simmer until tender, pour off the free water and add the bacon drippings. Season with salt and pepper to taste, and mash thoroughly.

Mashed parsnips left over may be served later by preparing as follows:

Place in a bake pan, level the top, and grease lightly. Place in the oven until browned, about 40 minutes. Serve hot.

187. Parsnips, sugared

30 pounds parsnips
2 quarts beef stock
2 pounds sugar
1 ounce cinnamon, ground
Salt and pepper to taste

Scrape and wash the parsnips thoroughly, slice lengthwise, and place them in a well-greased bake pan. Season to taste with salt and pepper. Pour over them the beef stock. Cover the bake pan to prevent evaporation. Bake in a slow oven (200°–250° F.—18 to 20 counts) for about 1 hour, or until tender. Sift the sugar and cinnamon together. About 5 minutes before taking out of the oven, sprinkle this sugar-cinnamon mixture over the parsnips and replace in the oven until the top begins to brown.

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188. Peas, creamed, canned

3 cans peas, no. 10 cans, or 16 no. 2 cans
1 pound butter
1 pound flour
2 cans milk, evaporated, or 6 ounces powdered skim milk and 1½ pints water

Put the peas into a stewpan and season with pepper and salt to taste, then add the butter and bring to a boil. Thicken slightly with a flour batter made with milk and flour (see recipe 132). Reheat and serve hot.

189. Peas, green

14 quarts peas, green
5 quarts beef stock
1 pound butter or drippings
2 cans milk, evaporated, or 2 quarts fresh milk

Hull and wash the peas in cold water. Place in a boiler or stewpan containing the hot beef stock and butter. Season with salt and pepper and boil about 15 minutes. Thicken with a flour batter (recipe 132) and bring to a boil again, then add the milk, and serve hot.

190. Potatoes, baked

35 pounds potatoes, fresh

Select and wash (do not peel) potatoes of about the same size. Grease each potato and place in a bake pan and cover with a larger pan. Bake in a quick oven (400°–450° F.—9 to 12 counts) until well done, usually about 45 minutes. Do not pierce with a fork. If they seem soft when pressed, they are done. Baking over an hour may cause the potatoes to become dark and soggy. Serve hot with butter.

191. Potatoes, boiled

35 pounds potatoes, fresh

Peel and wash the potatoes, cut into pieces and place in boiling water. Boil briskly until thoroughly done (about 30 to 40 minutes). Drain and leave on stove a few minutes to dry. Serve hot.

192. Potatoes, boiled in jackets

35 pounds potatoes

Select and clean potatoes of uniform size. Soak them a few minutes in cold water, then put them in boiling water and cook until tender, which requires about 40 minutes. When tender drain off free water. Do not allow potatoes to boil until broken as this will cause them to absorb the water and become pasty and soggy. Remove the kettle to back of stove, allowing the steam to escape. The cooking should be so regulated that they can be served immediately when ready.

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193. Potatoes, browned

35 pounds potatoes

Select and clean small potatoes and boil them until done, then peel and grease each potato and spread them in a single layer on the bottom of a well-greased bake pan. Bake in an oven until brown, usually about 30 minutes.

194. Potato cakes

40 pounds potatoes
2 pounds flour
4 ounces parsley, green, chopped

Run the peeled and cooked potatoes and the parsley through a food grinder and mold into cakes weighing about 3 ounces. Fry in shallow fat until nicely browned and crisp. May be served with any kind of meat. Left-over potatoes prepared in any manner may be used in this recipe. Soaked bread crumbs may be added to fill out quantity for one meal. Do not add more than 5 pounds bread to 30 pounds potatoes.

195. Potatoes, cheesed (au gratin)

30 pounds potatoes (left-over or boiled)
1 gallon beef stock
2 pounds cheese, chopped or grated
1 pound flour
4 cans milk, evaporated, or 1 pound powdered skim milk dissolved in 3 pints water
½ pound shortening
½ pound butter

Use any left-over boiled or baked potatoes. Cut into pieces about the size of a lima bean, season to taste with salt and pepper, and mix with the beef stock. Melt the shortening, add flour and milk, making cream sauce. Spread the potatoes 2 or 3 inches deep on the bottom of a well-greased bake pan. Pour the cream sauce over the potatoes, sprinkle with chopped or grated cheese, dot here and there with small pieces of butter, and bake in a quick oven (400°–450° F.—9 to 12 counts) for about 30 minutes until browned. Serve hot.

196. Potatoes, creamed

30 pounds potatoes
1 gallon beef stock
2 cans milk, evaporated, or 6 ounces powdered skim milk dissolved in 1½ pints water
4 ounces parsley
2 pounds flour
1 pound butter

Clean and boil the potatoes with jackets on until well done, then peel and slice them crosswise. Allow the beef stock to come to a boil on the range, thicken it with a flour batter (recipe 132), and add the milk. Place the potatoes in a bake pan and cover them with the beef stock and batter mixture, add the butter, bring to a boil, and remove from the range immediately. Meanwhile, chop the parsley fine and sprinkle over the potatoes before serving. Serve hot.

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197. Potatoes, french baked

35 pounds potatoes
2 pounds fat
4 quarts beef stock

Clean, peel, and cut the potatoes in halves lengthwise. Place them in a well-greased bake pan and salt to taste, then add the stock and fat. Mix thoroughly and cook in a medium oven (325°–400° F.—12 to 16 counts) about 1 hour, or until the potatoes are tender. Do not stir while cooking. Serve hot.

198. Potatoes, french fried

50 pounds potatoes
7 pounds fat

Clean and peel the potatoes and cut them lengthwise into ½-inch slices. Fry in deep fat until nicely browned. Do not place too many of the potatoes in the fat at one time, as this cools the fat and makes the fried potatoes grease-soaked. Drain and salt. Serve hot.

199. Potatoes, fried (sautéed)

40 pounds potatoes, unpeeled
1 pound fat

Wash the potatoes and boil with jackets on until tender. When cool peel and slice crosswise. Season with salt and pepper to taste and add sufficient hot fat to moisten. Spread over the bottom of a well-greased bake pan to the depth of about 2 inches, and fry in a quick oven (400°–450° F.—9 to 12 counts) or on top of the range for about 30 minutes. Serve hot. Care should be taken not to get the potatoes too greasy. They may be fried without first being moistened with hot fat in shallow fat, but must be carefully watched to prevent burning.

200. Potatoes, german boiled

30 pounds potatoes
2 pounds onions, browned

Clean, peel, and cut the potatoes into pieces about the size of an egg, place in cool water, and boil until done. Then place in vegetable dishes and spread about 2 basting spoonfuls of browned onions over the contents of each dish. Serve hot.

Potatoes left over from this recipe may be used in lyonnaise potatoes, salads, fried potatoes, hash, stews, and various other dishes.

201. Potatoes, hashed browned

30 pounds potatoes
1 gallon beef stock

Cut the cooked potatoes into pieces about the size of a lima bean. Season to taste with salt and pepper, and mix with beef stock. Spread 2 or 3 inches deep over the bottom of a well-greased pan. Spread a little fat over the top and bake about 30 minutes in a quick oven (400°–450° F.—9 to 12 counts). Serve hot.

202. Potatoes, lyonnaise

40 pounds potatoes, unpeeled
8 pounds onions

Wash the potatoes and boil them with jackets on until tender, then peel and slice crosswise. Wash and slice the onions, fry them brown, and add to the

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potatoes. Season to taste with pepper and salt, adding sufficient melted fat to moisten. Spread 2 inches deep in the bottom of a well-greased bake pan. Bake about 15 minutes in quick oven (400°–450° F.—9 to 12 counts). Serve hot.

203. Potatoes, mashed

40 pounds potatoes
1 pound butter
2 cans milk, evaporated, or 6 ounces powdered skim milk and 1½ pints water

Clean and peel the potatoes and boil them until thoroughly done. Drain, salt, and mash well. Heat milk and melt butter and add to the mashed potatoes, beat vigorously wtih a wire whip. Garnish with small quantity of chopped parsley. The potatoes may be fluffed by the addition of 1 tablespoonful of baking powder just before they are beaten with the wire whip. Serve hot.

204. Potatoes, sweet, baked

40 pounds potatoes, sweet
1 pound fat

Wash and trim all defective spots. Rub with fat and bake in a pan in a medium oven (325°–400° F.—12 to 16 counts) for 1 hour or until done. Serve hot in jacket with butter.

Do not pierce with fork to ascertain if done. When done, the potatoes are soft when pressed. This requires about 50 minutes.

205. Potatoes, sweet, boiled

40 pounds potatoes, sweet, unpeeled

Peel and trim all defective spots and wash. Boil 40 minutes or until tender, then drain. Serve hot.

206. Potatoes, sweet, candied

45 pounds potatoes, sweet, unpeeled
1 pound butter
2 pounds sugar
1 gallon beef stock, strained

Wash the potatoes and boil until medium done, about 20 minutes; then peel and slice them lengthwise. Spread the slices in three layers in a bake pan, putting about one-third of the sugar and butter on top of each layer; pour the beef stock over the whole and bake in a medium oven (325°–400° F.—12 to 16 counts) 40 minutes to 1 hour until well browned. Serve hot.

207. Potatoes, sweet, fried

45 pounds potatoes, sweet
5 pounds fat

Procedure same as for potatoes, french fried (recipe 198).

208. Pumpkin, baked

30 pounds pumpkin, fresh
2 pounds bacon drippings

Peel the pumpkin, remove the seeds, and clean well. Cut in pieces not more than 2 inches square. Spread the pieces in one layer in a bake pan and pour over them about 1 pound of bacon drippings. Season with salt and pepper, cover with a larger pan to prevent evaporation, and bake in a slow oven (200°–250° F.—18 to 20 counts) until well done. Serve hot.

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209. Rice, boiled

7 pounds rice
3 gallons water
4 ounces salt

Wash the rice thoroughly in several waters. When the water comes to a boil, sprinkle in the rice and salt. Boil in an uncovered kettle, stirring once or twice with a fork. Boil about 30 minutes or until the rice can be mashed in the fingers, reduce the heat and keep on stove sufficiently long to drive off moisture. When finished each grain will be whole and separate. If cooked too much the grains will burst and stick together. Serve hot, as an addition to meat dishes. If served as a vegetable, add gravy, or add raisins and serve with milk and sugar.

210. Rice, curried

7 pounds rice
3 gallons water
4 ounces salt
2 ounces curry powder

Prepare and cook the rice as for rice, boiled (recipe 209). Make a paste of the curry powder and a little water and add to the finished rice. Serve as an additional vegetable or with meats.

211. Rice, fried

7 pounds rice
2 pounds onions, diced
4 pounds fat

Boil the rice as in recipe 209. Place the fat in a bake pan and heat. Place the onions in the hot fat and brown slightly. Add the rice and stir continually to prevent burning and to mix the fat with it thoroughly. Rice may be fried in a hot oven, but must be stirred every few minutes. About 15 or 20 minutes are required to fry it. Serve hot.

212. Rice, spanish

7 pounds rice
1 pound bacon, minced fine
3 pounds onions, minced fine
3 pounds peppers, green, minced
1 can tomatoes, minced, no. 10 cans, or 4 no. 2½ cans
1 ounce chili powder
2 gallons beef stock
Salt and cayenne pepper to taste

Wash the rice thoroughly, then fry in shallow fat until nicely browned. In the meantime fry the minced bacon, onions, and peppers in another pan until browned and tender, then add the minced tomatoes and fry slowly for another 10 minutes. Place the fried rice and bacon-onion-pepper-tomato mixture together in a boiler, add the chili powder, and pour on the beef stock. Simmer until the rice is tender. Serve hot alone or with meats.

213. Rice, steamed

7 pounds rice
2 gallons water
4 ounces salt

Wash the rice thoroughly in several waters. Bring the water to a boil, add the salt, sprinkle in the rice, and let boil for 5 minutes, then let cook at a simmering temperature for 45 minutes with the lid partly open so that the steam may escape. When stirring rice, always use a fork to avoid breaking the kernels.

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214. Sauerkraut

4 gallons sauerkraut, or 4 cans sauerkraut, no. 10 cans
2½ gallons beef stock

Add the beef stock to the sauerkraut, season to taste, and simmer for about 1 hour. Serve hot.

215. Sauerkraut, how made

30 pounds cabbage, trimmed
1 pound salt

Remove outer green leaves and slice the cabbage fine. Place in a barrel a layer of cabbage (about 12 inches) and sprinkle salt over it, then mash with a wooden masher until mushy. Add other layers of cabbage and salt until the barrel is full. After the barrel is filled, cover the kraut with a clean cloth and then with a board prepared to fit snugly inside of the barrel. The board should be placed on the cloth and a hundred-pound rock on the board while the cabbage is fermenting. Let stand in a temperature of about 70° F. for 1 month. If the kraut is made in warm weather, the amount of salt used must be increased by ½ pound. In warm weather the ripening process will be faster than in cold weather. When the kraut is ready for use it will have a decided odor, but when not fully matured it will have an odor somewhat resembling that of beer. The temperature of the place where it is stored has much to do with the acidity acquired in any given time. Each time when removing kraut from the barrel, thoroughly wash cloth, barrel cover, weight and sides of barrel, before replacing. This should be done once a week whether kraut is removed or not. Care should be exercised in the selection of a barrel for sauerkraut. Charred barrels should not be used. Oak barrels are preferable.

216. Squash, baked

Prepare in the same manner as pumpkin, baked (recipe 208), substituting squash for pumpkin.

217. Squash, canned, baked

12 cans squash, no. 3 cans, or 4 cans squash, no. 10 cans
1 pound fat

Remove from the cans, season with salt and place in a well-greased pan, spread evenly and add a small amount of fat, place in a medium oven (325°–400° F.—12 to 16 counts) and bake for one-half hour. Serve hot.

218. Squash, mashed

25 pounds squash, fresh
4 quarts beef stock
2 pounds bacon drippings

Peel the squash, remove the seeds, and clean well. Cut in pieces not more than 2 inches square, place in a boiler, and pour over it the beef stock. Season to taste with salt and pepper, close the boiler with a tight lid, and boil about 2 hours (or until well done). Add the bacon drippings and mash well before serving. Serve hot.

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219. Succotash

2 cans corn, no. 10 cans, or 10 no. 2 cans
1 can lima beans, no. 10 cans, or 5 no. 2 cans
2 pounds bacon, diced
2 quarts beef stock
1 pound flour

Mix the corn, beans, and bacon, season to taste with pepper and salt, and pour over the mixture sufficient beef stock to cover it. Simmer until hot (about 15 minutes), then thicken slightly with a flour batter (recipe 132), and boil for 5 minutes more.

220. Tomatoes, stewed

30 pounds tomatoes, fresh, or 3 cans tomatoes, no. 10 cans, or 14 cans tomatoes no. 3 cans
5 pounds bread, dry
1 pound butter (for flavoring, if desired)

For *fresh tomatoes* place 8 or 10 tomatoes in a collander at a time and set in boiling water for about one-half minute. Peel and split them in halves and place in the stewpot. Simmer and add 4 quarts of strained beef stock, season to taste with pepper and salt, and add croutons made from dry bread.

If *canned tomatoes* are used, heat just long enough to be hot for serving, not over 15 minutes, season, and add croutons (and butter if used). Serve hot.

221. Turnips, boiled

25 pounds turnips
5 pounds bacon or salt pork

Peel turnips and cut crosswise into ½-inch slices. Add bacon or salt pork, pepper and salt to taste, and boil slowly 40 minutes or until done. Keep turnips completely covered with water and leave boiler uncovered in order that the sulphur may escape. Serve hot.

222. Turnips, mashed

Same as turnips, boiled, except the turnips are mashed before serving.

223. Turnips, left-over

May be used by baking in the oven until slightly browned while covered with a few strips of bacon or salt pork.

DESSERTS

224. Apples, baked

100 apples
2 pounds sugar
1½ ounces cloves, ground
1½ ounces nutmeg, ground

Select uniform-sized hard apples. Wash and remove the core. Place in a bake pan, sprinkle with the sugar and spice. Bake in a moderate oven (250°–325° F.—16 to 18 counts) for about 1 hour or until tender. Serve hot or cold, with or without sweet milk or sauce.

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225. Apple or fruit rolls

Dough

10 pounds flour
5 pounds lard
2 ounces salt
4 ounces sugar

Filler

25 pounds apples, fresh, or 7 pounds apples, dried, or 3 cans apples, no. 10 cans
5 pounds sugar
3 ounces nutmeg
3 ounces cinnamon
½ pound butter

Prepare the dough and filler as for apple pie (see recipe 258), stewing the apples rather dry to avoid soggy crust. Roll the dough about ¼-inch thick into strips about 7 inches wide and a little longer than the width of the pan. Spread the apple filler moderately thin over the dough and then roll like a cigarette. Do not use too great a proportion of filler to dough or the rolls will be soggy. Regulate width of dough so that the finished rolls are not over 3 inches thick. Place in pan seam side down and close together so that the rolls retain their shape. Bake about 40 minutes in a medium oven (325°–400° F.—12 to 16 counts) and serve hot or cold, with or without sauce. Any kind of stewed and spiced fruit may be substituted for the apples and the rolls named accordingly.

226. Apple sauce

8 pounds apples, evaporated, or 30 pounds apples, fresh, or 3 cans apples, no. 10 cans
Sugar (varies with apples used), about 5 pounds
6 lemons

If *evaporated apples* are used, place the apples in 3 gallons of cold water and bring to a boil, then simmer until tender, about 2 hours. Add sugar to taste and flavor with lemon extract or sliced lemons.

If *fresh apples* are used, peel, core, quarter, add sugar and lemons, and simmer until mushy.

If *canned apples* are used, add sugar and lemons and simmer until mushy. Serve cold.

227. Apricots, dried, stewed

10 pounds apricots, dried
5 pounds sugar
6 lemons

Wash apricots and then place in enough water to cover. Soak about 8 hours or overnight, then add sugar and juice of lemon and simmer for 45 minutes or until tender.

228. Brown betty

15 pounds bread, or bread scraps
10 pounds sugar, caramelized
4 pounds currants or other dried tart fruit

Dice the bread into 1-inch cubes and brown in a slow oven. Add the caramelized sugar and the fruit to 5 gallons of water, thicken slightly with a flour batter (recipe 132), and pour over the diced bread. Bake in a medium oven (325°–400° F.—12 to 16 counts) about 20 minutes and serve with sauce (recipe 145).

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229. Cake, chocolate

Same as for cake, white (recipe 239), with addition of 1 pound cocoa or 12 ounces melted plain chocolate. The cocoa or melted chocolate is added at the end of the mixing and thoroughly stirred in.

230. Cake, corn

9 pounds flour
6 pounds corn meal
7 pounds sugar
4 pounds fat (butter, lard, or lard substitute)
30 eggs
8 ounces baking powder
1 ounce extract
2½ ounces salt

Whip the sugar, fat, extract, and salt to a cream and beat in the eggs slowly. Sift together the flour, corn meal, and baking powder, and add to the creamed mixture with sufficient water to make a stiff batter. Bake in a medium oven (325°–400° F.—12 to 16 counts) for about 30 minutes. This cake may be made in different forms using muffin pans as well as bake pans. Serve hot with butter, jam, jelly, or sirup.

231. Cakes, cup

See cake, white (recipe 239), and cake, quick (recipe 235).

232. Cake, eggless

10¼ pounds flour
5¼ ounces baking powder
3½ ounces cinnamon
2 ounces flavoring extract
15 pounds sugar
2¼ pounds fat (butter, lard, or lard substitute)
4 pounds fruit, dried, stewed, ground
10 quarts milk, fresh, or 10 cans milk, evaporated, diluted with 10 pints water

Cream the fat and sugar and flavoring extract. Sift together the flour, baking powder, and cinnamon three times and add this and the fruit to the creamed mixture with the milk. Water may be used in place of the milk, but does not make as good a cake. Stir well and bake about 40 minutes in a moderate oven (250°–325°F.—16 to 18 counts). Serve plain or iced. This recipe produces a fairly palatable cake which can be made from items included in the field ration, or when eggs are not available.

233. Cake, fruit, dark

8 ounces citron
8 ounces lemon peel
8 ounces orange peel
3 pounds raisins
3 pounds currants
3 pounds nuts, mixed, shelled
½ ounce nutmeg, ground
½ ounce ginger, ground
½ ounce cloves, ground
½ ounce cinnamon, ground
6 pounds flour
4½ pounds sugar
4½ pounds fat (butter, lard, or lard substitute)
12 ounces molasses
40 eggs

Slice citron, lemon, and orange peel very thin and about the size of a postage stamp, and wash. Pick the raisins, currants, and nuts over carefully and

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wash. Mix all the fruit and drain in a sieve for 2 hours, then dredge with a mixture of the nutmeg, ginger, cloves, cinnamon, and 1 pound of the flour. Cream the sugar, butter, and molasses and beat in the eggs. Add the remaining flour. When the flour is about half mixed in the batter, add the dredged fruit and spices and continue mixing until the fruit is evenly distributed and the mixture smooth. This mixture makes 35 pounds of cake.

The best results are obtained by baking fruit cake in an earthen crock. If this is not available it may be baked in a pan. Fruit cake requires a long slow process of baking. From 3 to 5 hours in a slow oven (200°–250° F.—18 to 20 counts) is required.

234. Cake, marble

Same ingredients as for cake, white (recipe 239), with added coloring. After the batter is mixed it should be divided into halves or thirds according to the number of colors desired. One portion should be left white, the other portion or portions should be colored as follows:

Chocolate.—Add 8 ounces cocoa or 6 ounces melted plain chocolate and stir well.

Pink, red, orange, etc.—These, or other desired colors, may be obtained by adding prepared commercial vegetable colorings until the desired color is reached.

After the different portions are colored they are combined, stirring only enough to make a pleasing combination of colors.

235. Cake, quick

4 pounds fat (butter, lard, or lard substitute)
12 pounds sugar, brown
30 eggs
2 cans milk, evaporated, or 7 ounces powdered skim milk dissolved in 2 pints water
7 pounds flour, soft
6 ounces baking powder
½ ounce cinnamon, ground
½ ounce nutmeg, ground

Put ingredients into a bowl and beat all together for 3 minutes. Regulate liquid to make a thick batter, adding water or milk if necessary. Bake in a medium oven (325°–400° F.—12 to 16 counts) for 40 minutes, or until done. Serve plain or with icing. The batter may be used for cup cakes.

236. Cake, raised

4 pounds yeast-raised dough (recipe 277)
2½ pounds fat (butter, lard, or lard substitute)
4½ pounds sugar
18 eggs
3 pounds flour
3 ounces nutmeg
3 ounces cinnamon
1 ounce cloves
3 pounds raisins

Take the dough when it is ready to punch down the first time and add to it the fat and sugar, and mix well. Then add the eggs, one at a time, working them into the dough. Sift the flour, cinnamon, cloves, and nutmeg together and add to the mixture. Mix or knead thoroughly, put in a bake pan, and set aside for about 1 hour, preferably in a temperature of 80° F. At the end

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of this time, the cake should be light and about double in height. Bake in a medium oven (325°–400° F.—12 to 16 counts) for about 30 minutes, or until done. Cool before removing from the pan. This cake will be improved in appearance and flavor by icing.

237. Cake, spice

2½ pounds fat (butter, lard, or lard substitute)
7 pounds sugar
40 egg yolks
20 egg whites
6 pounds flour, soft
4 ounces baking powder
5 cans milk, evaporated; or 1 pound powdered milk dissolved in 4 pints water
1 ounce salt
2 ounces cinnamon, ground
1 ounce cloves, ground
1 ounce allspice, ground
1 ounce nutmeg, ground

Cream the fat and sugar. Beat the egg yolks with the creamed fat and sugar. Moisten the spices with 1 pint boiling water and beat into the creamed fat-sugar-egg mixture. Sift together the flour, baking powder, and salt 3 times, and add gradually, with the milk, to the creamed mixture in such proportions as to make mixing easy. Beat the egg whites until stiff, and fold carefully into the batter. Bake in a medium oven (352°–400° F.—12 to 16 counts) for 40 minutes if made in the form of a loaf cake, or 25 minutes if made into cup cakes. Keep the oven as near 375° F. as possible throughout the baking. Serve plain or with icing.

238. Cake, sponge

2⅓ pounds flour, soft
5⅓ pounds sugar
60 eggs
3 teaspoonfuls salt
4 tablespoonfuls cream of tartar
½ cup water, boiling
3 tablespoonfuls vanilla extract

Weigh the flour, and sift 3 times with ½ of the sugar. Separate the eggs and beat the yolks. Add the remaining sugar to the yolks, and beat well to thoroughly mix. Add the boiling water, beating continuously. Add the flour-and-sugar mixture slowly and mix thoroughly. Sift the salt and cream of tartar over the egg whites and beat until the whites are stiff. Add the extract to the whites and mix with the yolk mixture. Bake for 1 hour at 300° F., on lowest shelf or rack in the oven; avoid top heat. Remove from the oven and turn the pan upside down until the cake is cool. This may be served with fruit as a shortcake.

239. Cake, white

7 pounds sugar
3½ pounds fat (butter, lard, or lard substitute)
24 eggs
2½ ounces flavoring extract
13½ pounds flour
10 ounces baking powder
2 ounces salt
4 cans milk, evaporated, or 13 ounces powdered skim milk dissolved in 3 pints water

Cream together the sugar, fat, eggs, and flavoring extract, adding one ingredient at a time in the order given. The flour, baking powder, and salt should be sifted together twice and added gradually. Add a part of the milk from time to time as needed to make the mixing easy. If mixed in

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a mechanical mixer, the beating operation should be at second speed. When all the milk is added there should be a stiff batter. If too stiff, more milk or water may be added. This may be baked in round pans for layer cake or in large pans for shortcake. If used for layer cake use 2 to 4 layers to form a cake when cool enough to handle and spread any desired filling between layers. Cover top and sides with same filling or an icing (recipes 252 and 253). If baked in sheet form, it may be made into layer cake or served plain or with a sweet sauce (recipe 145). This may also be made into cup cakes.

240. Cobbler, apple or fruit

Filler	*Crust*
7 pounds apples, evaporated, or 25 pounds apples, fresh, or 3 can apples, no. 10 cans	14 pounds flour
4½ pounds sugar	7 ounces baking powder
2 ounces cinnamon	2 pounds lard
1 ounce nutmeg	2 pounds sugar
3 lemons, sliced thin	27 eggs
	2½ ounces salt
	2 quarts water

If evaporated apples are used, wash the apples thoroughly and soak them in cold water for 2 hours, then cook them in 2½ gallons water until well done, but not broken. Cool them and add the sugar, spices, and sliced lemon.

If fresh apples are used, peel, core, and cut into eighths. Cook in a pan with sugar, sliced lemons, and spices until medium soft but not mushy. Avoid stirring as this breaks the apples.

If canned apples are used, cook as for fresh apples, but less cooking is required.

Crust.—Cream the sugar, lard, and salt thoroughly, then add the eggs, one at a time, stirring constantly. Pour in the water and mix well. Sift the flour and baking powder together several times, then add them to the mixture and work until smooth. Take about ⅔ of the dough and roll out ½ inch thick. Line 2 bake pans with a bottom crust and bake in a medium oven (325°–400° F.—12 to 16 counts) for 20 minutes. When baked cover both crusts in pans with spiced apples about ½ inch thick. Roll out the remainder of the dough and cover the contents of both pans, tucking the sides down well. Bake for 20 minutes in a medium oven. Serve hot with a sweet sauce of any flavor (recipe 145).

Other fruits, fresh, canned, or dried (peaches, apricots, prunes, etc.), may be substituted for the apples, and the cobbler named accordingly.

241. Crullers

10 ounces fat (butter, lard, or lard substitute)	5 pounds flour
1¼ pounds sugar	2½ ounces baking powder
10 eggs	1¼ pints water
½ ounce flavoring extract	8 pounds fat (for deep frying)

Cream butter and sugar together, and add the extract. Beat the eggs well, then beat into the creamed mixture. Sift the baking powder and flour together and add to the mixture. Add the water, and stir until the dough is smooth.

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Roll out the dough to a thickness of ½ inch and cut with a doughnut cutter. Fry a golden brown in deep fat. Remove, drain, and roll in granulated sugar, or place on a plate and dust with powdered sugar.

242. Custard, egg

2 gallons milk, fresh, or 8 cans milk, evaporated, diluted with 8 pints water, or 26 ounces powdered skim milk dissolved in 9 pints water
40 eggs
2 ounces salt
24 ounces sugar
2 ounces flavoring extract

Beat all ingredients to a foam and pour into a well-greased bake pan. Bake in a medium oven (325°–400° F.—12 to 16 counts) for 20 to 30 minutes, or until done. When done a silver knife struck in the custard will come out clean. If baked too long it will become watery. Any flavoring may be used. Serve cold.

243. Fritters, oatmeal

2 gallons oatmeal mush (recipe 10)
2 pounds sugar
12 ounces baking powder
1 pound flour
8 pounds fat (for frying)

Mix all ingredients except fat to make a stiff batter. With a tablespoon cut pieces about half the size of an egg and fry, until a golden brown, in deep fat. Remove from the fat with a skimmer, and drain. Dust with powdered sugar or serve with sirup. To improve this recipe, add 6 eggs and a few drops of flavoring extract to each gallon of mush. Serve hot.

244. Fruits, dried, stewed

See: Applesauce (recipe 226).
Apricots, dried, stewed (recipe 227).
Peaches, dried, stewed (recipe 256).
Prunes, stewed (recipe 266).

245. Gelatin

8 ounces gelatin, powdered
5 ounces sugar
¾ ounce flavoring extract
10 to 15 quarts water (dependent on brand of gelatin used—follow directions on package)

Soak the gelatin in ½ pint of cold water for 10 minutes. Bring the remainder of the water to a boil, stir in the soaked gelatin until dissolved, and then stir in the sugar. Cool the mixture and stir in the flavoring extract. Pour into a mold which has been rinsed in cold water. Let stand until it jells. It is then ready to serve. The lower the temperature in which set, the quicker the gelatin will jell. At 50° F. it will jell in 2 hours, while at 80° F. it will jell in 6 hours. Addition of various fruits, after cooling and before jelling, improves and enriches the dish. Fruit juices may be used for color and flavor. To remove from mold, set the mold in warm water for a few seconds.

246. Ice cream

½ pound flour or cornstarch
5 pounds sugar
½ teaspoonful salt
24 eggs
12 quarts milk, fresh, or 12 cans milk, evaporated and 12 pints water
1 pint cream, thin
2 teaspoonfuls vanilla extract

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Mix flour, sugar, and salt. Add eggs (slightly beaten) and milk, gradually. Cook in double boiler (over hot water) about 20 minutes, stirring constantly at first. If the custard has a curdled appearance this will disappear in freezing. When cool add cream and flavoring extract and freeze. Any flavoring extract may be used for flavor in place of vanilla, or any fruit may be added for flavor and additional richness. This ice cream may be used as a base for chocolate ice cream, coffee ice cream, strawberry ice cream, etc.

247. Ice cream, chocolate

4 gallons basic ice cream mixture
12 ounces cocoa or 8 ounces chocolate melted

Add the cocoa or melted chocolate to the basic ice cream mixture, stir well, and freeze.

248. Ice cream, coffee

3¾ gallons basic ice cream mixture
6 ounces coffee, roasted and ground
1 quart water, boiling

Make coffee from the 6 ounces of coffee and 1 quart of boiling water according to any approved method, strain and cool, then add to the basic ice cream mixture, stir well, and freeze.

249. Ice, lemon

2 ounces powdered gelatin
15 quarts water
80 lemons
7½ pounds sugar
1¼ ounces lemon extract

Soak the gelatin in 2 pints of cold water for 10 minutes. Squeeze the juice from the lemons, grate the rinds, and add the juice, grated rinds, sugar, and the soaked gelatin to the balance of the water. Bring to a boil, cool, add the extract, and freeze.

250. Ice, orange

2 ounces powdered gelatin
15 quarts water
60 oranges
15 lemons
7½ pounds sugar
1¼ ounces orange extract

Soak the gelatin in 2 pints cold water for 10 minutes. Squeeze the juice from the oranges and lemons, grate the rinds. Add the juice, grated rinds, sugar, and the soaked gelatin to the balance of the water. Bring to a boil, cool, and add the extract and freeze.

251. Ice, pineapple

2 ounces powdered gelatin
10 quarts water
7½ pounds sugar
15 to 20 pineapples, fresh, according to size, or 7 cans crushed pineapple no. 2½ cans, or 2 cans pineapple, no. 10 cans

Soak the gelatin in 2 pints cold water for 10 minutes. Add the soaked gelatin, the sugar, and the pineapple (diced, if fresh) to the balance of the water. Bring to a boil, cool, and freeze.

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252. Icing, boiled, for cakes

4 pounds sugar
½ pound butter
1 pint water
12 egg whites, beaten stiff
3 tablespoonfuls flavoring extract

Boil sugar, butter, and water until it forms a soft ball when dropped in cold water. Pour slowly over the beaten egg whites, beating continuously. Add the flavoring, mix well, and spread on cakes quickly. If not used immediately, it will harden and cannot be spread. Ten ounces of cocoa or 6 ounces of melted chocolate may be added to the sugar and water during cooking instead of the flavoring.

253. Icing, uncooked, for cakes

4 pounds powdered sugar
1 pint cold water
3 tablespoonfuls vanilla extract
½ pound vegetable shortening or butter (do not use lard)

Mix the sugar with cold water until of spreading consistency. Add the flavoring extract and shortening and mix well. Spread on cakes and let stand 30 minutes before serving.

Chocolate icing may be made by adding 10 ounces of cocoa or 6 ounces of melted chocolate with the sugar before adding the water. If chocolate is added, do not use any flavoring extract.

Any flavoring extract may be used for flavoring instead of vanilla using 2 tablespoonfuls instead of 3 tablespoonfuls of vanilla.

254. Meringue

(For 17 pies, 9 inch)

34 egg whites
1 ounce salt
1 pound sugar
½ ounce vanilla extract

Beat the egg whites until they are foamy and white in appearance and stiff enough to hold their shape. Sprinkle sugar over the beaten whites and continue beating until the mixture is stiff enough to hold in peaks. During the beating add the salt and extract. Spread over pie filling with the aid of a smooth knife and brown on upper shelf of a quick oven (400°–450° F.—9 to 12 counts). This requires about 15 minutes.

255. Mincemeat

1¼ pounds beef, fresh (cooked) or corned beef
1¼ pounds suet
5 pounds apples, dried
2½ pounds peaches, dried
2½ pounds prunes, seeded
¼ pound cinnamon, ground
1 ounce cloves, ground
¼ ounce black pepper, ground
2½ pounds sugar
¼ pound salt
1¼ pounds currants
4 pounds raisins
½ pound candied citron
¼ pound lemon peel
¼ pound orange peel

Soak the dried fruit in cold water for 1 hour, then drain, and run the beef, suet, apples, peaches, and prunes through a meat grinder. Then mix all the ingredients with only sufficient water to moisten and pack in a clean con-

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tainer, preferably a wooden keg. This mixture will keep well when kept free from water. Five pounds of this mixture will make 15 pies.

256. Peaches, dried, stewed

7 pounds peaches, dried
3 pounds sugar
4 lemons

Wash peaches and place in enough water to cover. Soak about 8 hours or overnight, then add sugar and juice of lemons and simmer for 45 minutes or until tender.

257. Pie crust

(Makes 3 double 9-inch crusts)

1 pound flour
8 ounces fat (lard or lard substitute)
⅕ ounce salt
¼ pint cold water

All ingredients should be thoroughly chilled before using.

Mix the flour with one half the fat by chopping or cutting with a food chopper or knife until the size of corn meal. Then mix in the remainder of the fat by the same method, except that the fat is cut in so as to leave the mixture in small pieces, about the size of a bean, then add the cold water slowly while tossing the mixture with a fork. A medium-soft dough, not slack or stiff, is easiest to handle. Roll and handle as little as possible. (See par. 119.)

Best results will be had by making up pie crust dough in small batches like this recipe for 3 pies.

258. Pie, apple or fruit

(See par. 119)

35 pounds apples, fresh, or 7 pounds apples, evaporated, or 3 cans apples, no. 10 cans
3 pounds sugar
3 lemons
¾ ounce cinnamon

Fresh apples.—Peel, core, and cut into eighths. Cook in a pan with sugar and lemon and cinnamon added until medium soft, but not mushy. Avoid unnecessary stirring which breaks the apples.

Evaporated apples.—Soak overnight or about 8 hours in cold water. Cook as for fresh apples.

Canned apples.—Put into pie crust, add sugar, lemon, and cinnamon, then bake.

The quantity of sugar and spices used in the stew will have to be increased or decreased depending upon the tartness of the apples. Make the pies with double crust and bake about 40 minutes in a quick oven (400°–450° F.—9 to 12 counts). Many fruits may be substituted for the apples, as apricots, peaches, cherries, pineapples, etc.

This recipe is sufficient for about 17 pies.

259. Pie, banana cream

Filling.—Same as for coconut cream pie (recipe 261) except that instead of the coconut, 10 pounds of sliced bananas are added after the filling has cooled. If the bananas are added while the filling is hot, they will turn black.

Crust.—See recipe 257.

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260. Pie, chocolate, meringue

Filling (17 pies)

17 ounces chocolate, plain
6 quarts milk, fresh, or 6 cans milk, evaporated, diluted with 6 pints water, or 40 ounces powdered skim milk dissolved in 9 pints water
1 pound flour
1½ ounces salt
34 egg yolks
6 ounces butter
1 ounce vanilla extract
5 pounds sugar

Melt chocolate in double boiler, add sugar, flour, and salt, and stir. Heat milk, but not to boiling point, stirring frequently to prevent scorching. When hot, stir gradually into the mixture. Cook the mixture about 15 minutes, stirring constantly until it thickens. Cover double boiler and set on back of stove. Beat egg yolks lightly, and stir about ¼ of the hot mixture with the yolks. Return to double boiler and cook about 2 minutes. Add butter and vanilla and beat until smooth.

After the pie crust has been baked, fill with the chocolate mixture, cover with a meringue (receipe 254), and brown on upper shelf of quick oven (400°–450° F.—9 to 12 counts). (For pie crust see recipe 257.)

261. Pie, coconut cream

Filling

1 pound flour
3¾ pounds sugar
36 eggs
1 ounce vanilla extract
6 quarts milk, fresh, or 6 cans milk, evaporated, diluted with 6 pints water, or 40 ounces powdered skim milk dissolved in 9 pints water
5 pounds coconut, shredded

Separate egg whites and yolks and beat yolks lightly. Mix flour and sugar. Heat milk, stir about ¼ into flour-sugar mixture and beat until smooth. Add egg yolks and mix well. Add remainder of milk gradually with constant stirring. Put in double boiler and cook for about 15 minutes, then add coconut and extract and pour into baked pie shell, place filled pie shell in oven for about 10 minutes. Meringue (recipe 254) may be added before the pie is put into the oven. Do not cut this pie until time to serve. Serve on the day it is prepared. (For pie crust see recipe 257.)

262. Pie, custard

Filling

3½ pounds sugar
12 quarts milk, fresh, or 6 cans milk, evaporated, diluted with 6 pints water
36 eggs
12 ounces cornstarch
½ ounce vanilla extract
Pinch of nutmeg or mace, ground.

Beat the sugar and eggs until the sugar is well dissolved. Add the milk, saving enough to dissolve the cornstarch. Add the dissolved cornstarch and flavoring. Mix. For baking see paragraph 119. (For pie crust see receipe 257.)

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263. Pie, lemon cream

Filling (17 pies)

1 pound flour
5½ pounds sugar
48 eggs
17 lemons
6 quarts milk, fresh, or 6 cans milk, evaporated, diluted with 6 pints water, or 40 ounces powdered skim milk dissolved in 9 pints water

Mix flour and sugar. Beat eggs and mix with flour and sugar, grate lemon rinds, squeeze lemon juice, and add grated rinds and juice to mixture. Stir milk into mixture slowly to prevent lumping. Cook mixture in double boiler for 15 minutes, stirring constantly until it thickens, then remove from the fire and beat until smooth. Pour into pie shells which have been baked to a light brown. Place the filled pie shells (with meringue) on upper shelf of quick oven (400°–450° F.—9 to 12 counts) for about 10 minutes. (For pie crust see receipe 257.)

264. Pie, mince

For each pie use ⅓ pound of mincemeat (recipe 255), and ⅔ pound of liquid. The liquid may be either sugar, sirup, molasses, or cider. Mix the mincemeat and liquid thoroughly and use a double pie crust. Bake about 30 minutes in a quick oven (400°–450° F.—9 to 12 counts).

265. Pie, pumpkin or squash

Filling (17 pies)

12 pounds pumpkin or squash, fresh, or 3 no. 10 cans, or 7 no. 3 cans
6½ pounds sugar, brown or white
1½ ounces salt
34 eggs
3 ounces ginger, ground
5 quarts milk, fresh, or 5 cans milk, evaporated, diluted with 5 pints water, or 1 pound powdered skim milk dissolved in 8 pints water
3 ounces cinnamon or cloves

If fresh pumpkin or squash is used, prepare and cook as in squash, mashed (recipe 218), if canned, cooking is not necessary. Place cooked or canned pumpkin or squash in a large bowl or container, the pumpkin or squash must be smooth but not watery, if watery, heat until water has evaporated. Mix sugar, salt, spices, and milk with the pumpkin or squash. Beat the eggs and stir into the mixture and pour into unbaked pie shells. Bake in a quick oven (400°–450° F.—9 to 12 counts) for the first 20 minutes, then lower to a slow oven (200°–250° F.—18 to 20 counts) and continue for 40 minutes longer. When completely baked, the filling is firm and does not stick to a knife blade, and the edge of the crust is a golden brown. If the filling shrinks unduly, it was too moist. (For pie crust see recipe 257.)

266. Prunes, stewed

7 pounds prunes
3 pounds sugar
3 lemons, sliced thin

Wash the prunes and put into a container with the sugar and cold water to cover. Soak over night or 8 hours. Then bring to a boil and boil for 30 minutes or until tender. Add the sliced lemons in the last 5 minutes. Serve cold. Overcooking causes the prunes to break down and become mushy.

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267. Pudding, apple

7 pounds apples, dried, soaked, and stewed, or 25 pounds of fresh apples, stewed and diced, or 2 no. 10 cans
26 pounds bread (may be dry)
7 pounds sugar
4 ounces cinnamon

Slice and toast the bread and spread in the bottom of a well-greased bake pan, then spread a layer of the apples over the toast and sprinkle with sugar and cinnamon; continue alternate layers of toast and apples until the pan is filled. Bake in a medium oven (325°–400° F.—12 to 16 counts) about 20 minutes and serve with a plain or caramel sauce (recipe 145). Nearly any kind of fresh or dried fruit may be used and the pudding named accordingly.

268. Pudding, banana

10 pounds bananas
6 pounds sugar
3 pints milk
1 ounce salt
7 gallons water
12 eggs
4 pounds cornstarch
1 ounce vanilla flavoring
½ ounce lemon flavoring
½ pound butter

Put 6 gallons of water into a boiler. Add the sugar, salt, and milk. Bring to a boil. Dissolve the cornstarch thoroughly with 1 gallon of cold water. When the mixture reaches the boiling point, pour the dissolved cornstarch in slowly, stirring continually. Let it cook at a simmering temperature until thickened. Remove from the fire, and when partly cooled add the flavoring, beaten eggs, and crushed bananas. Pour into pans and let cool.

269. Pudding, bread, with sauce

20 pounds bread crusts or dry bread
4 pounds fruit, fresh, dried, or canned
4 pounds sugar
2 ounces cinnamon
4 cans milk, evap., or 4 quarts milk, fresh, or 1 pound powdered skim milk dissolved in 3½ pints water
4 pounds raisins
12 eggs

Soak the bread in the milk. Season with sugar and cinnamon, add raisins and beaten eggs, mix and spread about 1 inch deep in pan. Over this spread about 1 inch of fruit stewed (if dried) then another layer of the bread mixture. Sprinkle sugar and cinnamon over the top layer. Bake about 40 minutes in a medium oven (325°–400° F.—12 to 16 counts). Serve hot or cold with cream or sweet sauce. This makes an excellent dish and gives an opportunity to use available scrap bread. Shredded coconut may be used to improve the flavor.

270. Pudding, cornstarch

7 pounds sugar
1½ ounces salt
5 pounds cornstarch
7 cans milk, evap., or 7 quarts milk, fresh, or 1½ pounds powdered skim milk dissolved in 5½ pints water
1½ ounces flavoring extract

Dissolve the cornstarch in 5 quarts of cold water, then add 5 gallons of boiling water, the sugar, salt, and milk. Cook for 5 minutes, cool, and add the extract. This pudding is improved by dissolving the cornstarch in 5 quarts

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of milk instead of cold water and the addition of 4 eggs to each gallon of pudding made. It should never be served plain; various fruits, coconut, etc., should be added. Pour into vegetable dishes and when cool place in the ice box; serve with milk or sweet sauce (recipe 145).

271. Pudding, indian, baked

4 pounds corn meal
2 pounds flour
1 quart molasses
4 cans milk, evaporated, diluted with 4 pints water
½ pound butter
2 gallons water, boiling
½ ounce cinnamon
1 ounce ginger

Mix the molasses and corn meal together and pour over the boiling water. Add the butter, salt, and spices. When the mixture is cool, pour the milk over, but do not stir into the pudding. Bake in a slow oven (200°–250° F.—16 to 18 counts) from 2 to 3 hours. Take care that it does not burn. Serve hot.

272. Pudding, plum

10 pounds flour
6 ounces baking powder
2½ ounces salt
5 pounds beef suet, chopped fine
5 pounds fruit, dried, stewed, and chopped fine
½ ounce cloves, ground
2 ounces cinnamon, ground
½ ounce nutmeg, ground
4 pounds sugar

Mix the flour, baking powder, salt, beef suet, stewed fruit, and spices in the order named. Dissolve the sugar in water and add it to the mixture, together with sufficient cold water to make a stiff dough. Fill 5-pound lard pails or pudding cans two-thirds full of the mixture. If no lids are available, tie a cloth tightly over the top of each pail or can. Place in a boiler containing sufficient boiling water to reach the height of one-third the pails or cans and maintain the water at the same level during cooking. Boil for 8 hours. Remove from the cans and split the pudding lengthwise through the center. Serve hot with plum-pudding sauce (recipe 140).

273. Pudding, rice and apple

30 pounds apples
½ pound butter
1 ounce cinnamon
3 cans milk, evaporated, diluted with 3 pints water
5 pounds rice
4 pounds sugar
6 eggs
1 gallon water

Peel and cut the apples into small pieces. Cook the rice until tender and then drain off the water. Line the bottom of pans with cooked rice, then a layer of apples. Cream butter, sugar, and spice. Then add eggs (beaten), water, and milk. Pour the mixture over the rice and apples. Bake in a medium oven (325°–400° F.—12 to 16 counts) for 30 minutes. Serve with milk or sweet sauce.

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274. Pudding, rice

9 pounds rice
24 eggs
4 pounds raisins
9 pounds sugar
1 ounce salt
5 cans milk, evaporated, diluted with 5 pints water, or 5 quarts fresh milk, or 1 pound powdered skim milk dissolved in 4 pints water
½ ounce flavoring extract

Boil the rice for 15 minutes and drain. The rice should not be over-boiled, as the kernels should remain separate and firm. Mix the eggs, raisins, sugar, milk, salt, and extract. Add rice and sufficient water to cover and stir. Bake slowly in a moderate oven (250°–325° F.—16 to 18 counts) until slightly brown. Serve with cold or hot sweet sauce (recipe 145).

275. Pudding, sweet potato

40 pounds sweet potatoes
3 pounds sugar
18 eggs
2 cans milk, evaporated
1 ounce lemon flavoring, or ½ pint lemon juice

Wash and cover sweet potatoes with clean water, bring to a boil, and let cook slowly for 40 minutes or until tender. Drain off the water. When cooled, peel and put them through the meat chopper. Separate the egg yolks from the whites, add the egg yolks to the potatoes, then the sugar, milk, and flavoring or lemon juice. Mix it thoroughly and place in buttered or greased pans. Beat the egg whites until stiff and spread over the pudding. Bake in a medium oven (325°–400° F.—12 to 16 counts) until browned.

276. Pudding, tapioca

4 pounds tapioca
4 gallons water, cold
7 pounds sugar
4 pounds fruit, dried, stewed, and chopped
18 eggs
1 ounce flavoring extract

Soak the tapioca 2 hours in sufficient cold water to cover; then simmer until clear (until the "pearls" have disappeared) which will require about 1 hour; then beat or whip in the fruit, sugar, beaten eggs, and extract while hot. Raisins, currants, or other fruit may be added.

If quick (granulated) tapioca is used, no soaking is required. Add tapioca to cold water and bring to the simmering point. In about 15 or 20 minutes the granules of tapioca will have disappeared. Then add other ingredients as shown for pearl tapioca.

Serve hot or cold with milk or a sweet sauce (see recipes 6 and 145).

SWEET DOUGH PRODUCTS

277. Basic sweet dough

2 pounds flour, soft (pastry)
6½ pounds flour, hard (issue)
2 quarts milk, or water, or 2 cans milk, evaporated, diluted with 2 pints water
½ pound yeast, compressed, or 1½ pounds yeast, dried
1 pound sugar
1¼ ounces salt
1 pound fat (lard or lard substitute)
8 eggs
¼ ounce mace or nutmeg
¼ ounce lemon extract, or 4 lemons, grated, rind and all

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This recipe produces one basic sweet dough and provides sufficient dough to make about 225 buns, doughnuts, etc., or an equivalent quantity of coffee cake, etc. Therefore, one basic sweet dough is sufficient for 100 men. For 200 men, use two basic sweet doughs; for 50 men use one-half of one basic sweet dough, etc.

Straight dough method.—Cream thoroughly the sugar, salt, fat, and spice, then add eggs gradually and cream until light. Add flavoring extract. Dissolve the yeast in one-fourth of the milk which should be at a temperature of about 80° F. Add remainder of milk to the creamed mass and stir thoroughly to dissolve all ingredients. Add hard flour and begin mixing. Pour on yeast solution, add soft flour, and continue mixing until the dough is smooth and free from lumps. This dough should be slacker than ordinary bread dough. Regulate water or milk to have a dough not too slack to handle. Set to rise in temperature of about 80° F. and cover with cloth. Allow to ferment (rise) until dough around impressions made by moderate pressure of two fingers starts to recede, then give first punch. The first rise requires about 1½ hours. In hot weather, or when it is impossible to keep the temperature of the dough down to 80° F., it is best to punch the dough young, about 45 minutes after mixing, as over-fermentation ruins sweet dough more than any other factor. After punching, allow to stand 15 or 20 minutes, then work into desired forms. Cover dough not being worked to prevent crusting.

Comments.—The addition of 4 ounces of baker's malt, when available, to the above ingredients will improve the dough. All hard flour may be used if soft flour is not available. In such case substitute 1½ pounds cornstarch for an equal amount of flour.

This is a yeast-raised dough to which additional sugar may be added after fermentation. It is usually enriched by the addition of eggs, spices, butter, citron, lemon peel, raisins, nuts, etc., and is manipulated into desired forms. It may be made by the straight-dough or sponge methods. The sponge method (given below) is used when speed is essential.

If the dough must be handled in a cold room, some means should be found to keep the temperature up around 80° F. The dough may be placed in a suitable vessel and this vessel placed in a fireless cooker or into a larger container lined with sacks or hay. Close the top of larger container and keep in a warm place, if possible.

At least 50 different forms of cakes, rolls, buns, etc., may be made from this sweet dough. This is done by taking the desired quantity of the sweet dough for the product to be made, adding such additional quantities of sugar, butter, eggs, fruits, citron, lemon peel, nuts, etc., as desired for richness, and working into desired form.

Quick sponge method.—Dissolve all the yeast (½ pound) in 1 pint of the liquid. Dissolve all the sugar (1 pound) in 1 pint of the liquid. Pour the dissolved yeast over 3 pounds of the hard flour and mix slightly. Pour the dissolved sugar into the mixture and mix well. Set to stand in a warm place (about 90° F.). This will become spongy in about 20 minutes, hence the name "sponge." As soon as it has become light and spongy, put it into a mixing bowl, add remainder of liquid, and stir well to break up the sponge. Then cream the salt, fat, spice, and eggs, and add flavoring extract as for the straight-dough method. Add the cream mixture and stir well, then add remainder of flour and mix thoroughly. Allow to rest about 5 minutes and then commence working into the desired forms.

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278. Cake, apple

15 pounds apples, fresh, or 2 no. 10 cans apples
1 basic sweet dough (recipe 277)
1 pound sugar
1 pound fat (butter, lard, or lard substitute)
1 pound raisins

Make in the same manner as coffee cake (recipe 279), but place thin slices of cooked, fresh, or canned apples over top of dough about 30 minutes before baking. Sprinkle with sugar and cinnamon, and raisins if desired, and bake in medium oven (325°–400° F.—12 to 16 counts) about 30 minutes. Avoid too much heat, as this may cause the fruit to become dry, or very ripe fruit to become mushy. Almost any kind of fruit may be used instead of apples. Bring edges of dough up around the side of the pan so as to retain fruit juice.

279. Cake, coffee

1 basic sweet dough
1 pound sugar
1 pound fat (butter, lard, or lard substitute)
1 pound raisins

Work all other ingredients thoroughly into the sweet dough, roll out about ½ inch thick, and place in any kind of pan available. Allow to rise at 80° F. for about 30 minutes, or until the dough has about doubled in size. Bake in medium oven (325°–400° F.—12 to 16 counts) 20–30 minutes, or until done. To determine when baked, raise edge to see whether under side is done. After baking, cool and add plain icing (recipe 253) or, instead of icing, sprinkle top with sugar and cinnamon just before placing in oven.

280. Doughnuts

1 basic sweet dough (recipe 277)
3 pounds flour
½ ounce salt
3 ounces yeast compressed
½ ounce mace, ground
½ ounce lemon extract
Water sufficient to make a slack dough

Mix all other ingredients with the basic sweet dough, then let rise for 20 minutes in a temperature of 80° F. Roll out into sheets about ½ inch thick and cut with doughnut cutter or form into various shapes as desired. Let rise again until about double in size, and fry in deep fat at 365° to 370° F. Too stiff a mixture may cause the doughnuts to crack while frying.

After frying, drain and sprinkle with powdered sugar mixed with a small quantity of cinnamon. Icing may be used.

281. Doughnuts, jelly

1 can jelly, no. 10 can
1 basic sweet dough (recipe 277)
3 pounds flour
½ ounce salt
3 ounces yeast, compressed
½ ounce mace, ground
½ ounce lemon extract
Water sufficient to make a slack dough

Same as for doughnuts but instead of cutting into doughnut shape, cut off pieces of dough about 1½ ounces in weight and roll into a ball. Make depression with thumb or any suitable instrument, drop small quantity of jelly into this depression, and close by pinching dough together. Let rise, or proof, about 30 minutes, then fry and sugar in the same manner as for doughnuts.

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282. Rolls, cinnamon

1 basic sweet dough (recipe 277)
½ pound sugar
1 pound fat (butter, lard, or lard substitute)
6 ounces cinnamon

Roll the basic dough into sheets about ¼ inch thick, 15 inches wide, and convenient lengths. Brush with melted fat and sprinkle liberally with sugar and cinnamon. Roll the sheet dough into a tight roll as a cigarette and cut into ½-inch thick slices with a sharp knife. Place close together in well-greased pans with cut sides, which have first been sprinkled with sugar, up and down. Let rise until double in size and bake in a medium oven (325°–400° F.—12 to 16 counts) 30–40 minutes. Do not bake until hard. Move bake pans occasionally while in the oven to insure being well baked on bottom. Turn out of pans to prevent sticking. When cool, cover with uncooked icing (recipe 253) if desired.

283. Rolls, parkerhouse

1 basic sweet dough (recipe 277)
½ pound fat (lard or lard substitute)

Procedure same as for parkerhouse rolls (recipe 295).

284. Stollen

1 basic sweet dough (recipe 277)
1 pound fat (butter, lard, or lard substitute)
2 pounds sugar
12 eggs
2 pounds raisins
½ pound citron
2 cans pineapple, no. 2½ cans, diced and drained

Work all other ingredients thoroughly into the sweet dough. Take 10 ounces of dough and roll into a piece 10 by 8 inches, rolling the half nearest the operator ½ inch thick and the half away from the operator 1 inch thick, so that by folding away from the operator the upper fold is thinner. Space in bake pans 2 inches apart. Let rise for about 30 minutes. Bake about 40 minutes in medium oven (325°–400° F.—12 to 16 counts). Other fruits may be added if desired. After cooling, ice with uncooked icing (recipe 253).

HOT BREADS

285. Biscuit, baking powder

16 pounds flour
3 ounces salt
11 ounces baking powder
4 pounds fat (lard or lard substitute)
6 cans milk, evaporated, diluted with 6 pints water, or 20 ounces powdered skim milk dissolved in 6 pints water

Sift the dry ingredients together 3 times and work in the fat. Make a well in the middle and add all the milk at once. Stir until mixed. This should make a soft dough, if not, add more milk. Turn out on lightly floured board and knead quickly for not more than 1 minute. The secret of making good biscuit is in handling the dough only enough to mix thoroughly. Roll out to one-half the thickness desired in the baked biscuit, cut out with a biscuit cutter, and place in bake pans just touching each other. Bake in a quick oven (400°–450° F.—9 to 12 counts) for 12 minutes or until brown. Serve hot.

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286. Biscuit, cheese

Use the same recipe as for baking powder biscuit (recipe 285) adding 3 pounds of finely chopped American cheese. Mix same as for the baking powder biscuits, except that the cheese is added with the milk and thoroughly stirred in.

287. Biscuit, sour milk

8¼ pounds flour
1¼ ounces baking soda
1⅓ pounds fat (lard or lard substitute)
2⅔ ounces baking powder
1 ounce salt
3¼ quarts milk, sour

Mix and sift dry ingredients. Work the fat into the flour mixture. Make a well in the middle and add all the milk at once. Stir until mixed. This should make a soft dough, if not, add more milk. Handle dough only enough to mix thoroughly. Roll out to one-half the thickness desired in the baked biscuit, cut out with a biscuit cutter and place in a bake pan just touching each other. Bake in a quick oven (400°–450° F.—9 to 12 counts) for 12 minutes or until brown. Serve hot.

288. Corn bread

9½ pounds corn meal, white or yellow
2¼ pounds flour
3 ounces baking powder
3 ounces salt
½ pound fat (lard or lard substitute)
20 eggs
4 cans milk, evaporated, diluted with 4 pints water

Sift together corn meal, flour, salt, and baking powder. Work in the fat, add beaten eggs and milk, and mix well. Pour into a well-greased, heated pan and bake 20 minutes in a quick oven (400°–450° F.—9 to 12 counts). Cut into squares and serve hot. This may also be baked as muffins in muffin tins.

289. Corn bread (sour milk)

9½ pounds corn meal, white or yellow
1 gallon milk, sour
3 ounces soda
3 ounces salt
40 eggs
¾ pound fat (lard or lard substitute)

Sift together corn meal and salt. Work in the fat. Dissolve soda in ¼ cup water. Add, with the milk and beaten eggs, to the mixture. Mix well and pour into a well-greased, heated bakepan. Bake about 20 minutes in a quick oven (400°–450° F.—12 to 16 counts). Cut into squares and serve hot. This may also be baked as muffins in muffin tins.

290. Gingerbread

21 ounces sugar
10 eggs
2½ pints milk
¼ ounce cinnamon
6 pounds flour
21 ounces fat (lard or lard substitute)
2½ pints molasses
2¾ ounces soda
2 ounces ginger

Cream sugar, shortening, and spices. Add the eggs gradually, then add soda dissolved in molasses and milk. Mix thoroughly. Fold in flour. Grease pans. Bake in a medium oven (325°–400° F.—12 to 16 counts) for about 30 minutes. This may also be baked as muffins in muffin pans.

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ROLLS

291. Basic dough

10 pounds flour	13 ounces sugar
6½ ounces yeast, compressed	13 ounces fat (lard or lard substitute)
6 pints water or milk	2½ ounces salt

Dissolve the yeast in 2 pints of the water at a temperature of 80° F. Dissolve the sugar and salt in remainder of water. Add this to the flour and mix slightly. Add the dissolved yeast and the fat and mix thoroughly. Regulate the quantity of liquid to make a soft dough. Set to rise in a well-greased pan covered with a slightly damp cloth. In cold weather, or if the kitchen is cold, it is well to keep this cloth dampened with warm (not hot) water. If the temperature of the room is about 80°, it is sufficient to allow the dough to rise. Ferment and punch as for basic sweet dough (recipe 277). It is best to work up this dough while it is still on the young side. Do not allow it to over-ferment.

This dough makes rolls, etc., which are preferred by many to those made from the basic sweet dough. It may be made into a variety of rolls, as parker-house, sandwich buns, finger rolls, pan rolls, etc., or may be used to make a raisin bread. It may also be used to make plain bread which is superior for toast.

292. Cinnamon rolls

Use the basic dough (recipe 291) and make up into cinnamon rolls as shown in recipe 282.

293. Finger rolls

Use the basic dough (recipe 291). Scale into 2-ounce pieces, using the method shown in recipe 294, but cutting from 32-ounce pieces. Roll each piece about twice in a circular motion (do not form into a complete ball), then with the flat hand roll out into a cylinder or "snake" about 5 inches long. Endeavor to keep the ends square. It requires some experience to make neat finger rolls. Then place the rolls well apart on a well-greased bake pan, allow to proof (rise) until about double in size, and bake about 15 minutes in a medium oven (325°–400° F.—12 to 16 counts). These rolls are used for hot dogs and are good for lunches in the field, on the target range, etc.

294. Pan rolls

Use the basic dough (recipe 291) scaled into 1½-ounce pieces. Scale off pieces of dough weighing 24 ounces and roll out into "snakes" about 2 inches in diameter. Double over and cut in half, repeat this with each half; this gives four pieces. Cut each of these in half, this gives eight pieces. Cut each of these in half and the result is 16 pieces, each weighing 1½ ounces. This method is quick and with a little experience will give weights nearly enough accurate for practical purposes. Round up each piece into a neat ball and put close together in a well-greased bake pan. Allow to proof (rise) until about double in size and bake for about 15 minutes in a medium oven (325°–400° F.—12 to 16 counts). Serve hot.

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295. Parkerhouse rolls

Use the basic dough (recipe 291). Scale into 1½-ounce pieces as shown in recipe 294. Round into neat balls and allow to rest on the table, first sprinkling some dusting flour to prevent sticking to the table. By the time the last of the dough has been rounded, the first pieces will be ready for working into rolls. Place four of these pieces in a row. Use a small rolling pin (a piece cut from a household size broomstick is the proper size) and put a crease or dent in the middle of each piece. Then brush across the creases with melted butter or a mixture of melted butter and lard; then fold over, so that top fold is one-third shorter than bottom fold. Seal the two folds together by pressing the top lip, but do not apply enough pressure to knock down. Place in well-greased bake pans about 2 inches apart, let proof (rise) until about double in size, and bake in a medium oven (325°–400° F.—12 to 16 counts). Serve hot with butter, jam, or jelly.

296. Raisin bread

Wash 4 pounds of raisins, dredge with flour, then add to the basic dough (recipe 291) when mixing. Then handle as for soft bun bread (recipe 297).

297. Soft bun bread

Use the basic dough (recipe 291) and make up into loaves. If no individual bread pans are on hand, scale into 35-ounce pieces, round, and let rest until loose (about 20 minutes). Form into loaves and place six of these in one black iron bake pan. Proof (rise) until just above edge of pan, bake about 30 minutes in a medium oven (325°–400° F.—12 to 16 counts).

298. Sandwich buns

Use the basic dough (recipe 291). Scale into 2-ounce pieces as for finger rolls (recipe 293). Round each piece into a neat ball and place 2 inches apart in well-greased bake pans. Allow to rise about 15 minutes, then flatten, using the palm of the hand, or the bottom of a can, or a board, etc. Then allow to rise until about double in size and bake about 15 minutes in a medium oven (325°–400° F.—12 to 16 counts).

SALADS AND DRESSINGS

299. Apple and celery salad

9 pounds apples
8 pounds celery
3 pints mayonnaise dressing
1 head lettuce

Clean the celery and keep in a damp cloth so that it will remain crisp. When ready for use cut into ½-inch pieces. Save the celery leaves for use in soup, etc. Peel and core the apples and just before adding them to the mixture cut them into pieces similar in size to the celery. Add the mayonnaise dressing and mix well. Serve individually on lettuce leaves or in vegetable dishes garnished with lettuce leaves.

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300. Baked bean salad

16 pounds baked beans
4 pounds onions, chopped fine
4 pounds sweet pickles, chopped fine
2 ounces mustard, prepared
1 pint mayonnaise
½ pint vinegar
1 head lettuce
Salt and pepper to taste

Mix all ingredients thoroughly and season to taste with salt, pepper, mustard, and vinegar. Left-over baked beans from dinner may be used for salad. Serve individually on lettuce leaves or in vegetable dishes garnished with lettuce leaves.

301. Bean, stringless, salad

20 pounds beans, fresh, stringless, cooked and cold, or 3 no. 10 cans
2 ounces mustard, prepared
2 pints mayonnaise
½ pint vinegar
1 head lettuce
Salt and pepper to taste

To the cold beans add the mustard, salt, vinegar, and mayonnaise, and mix well. Serve individually on lettuce leaves or in vegetable dishes garnished with lettuce leaves.

302. Beet salad, pickled

17 pounds beets, fresh, or 2 no. 10 cans cut beets
2 pints vinegar
1 pound sugar

If fresh beets are used, cook and peel them, then dice in ¼-inch cubes; if canned beets are used no cooking is necessary. Place the beets in a salad bowl and cover with vinegar and sugar solution. Let stand for 1 hour to cool and place in vegetable dishes, serve cold.

303. Cabbage salad

20 pounds cabbage
2 pounds celery, diced
4 bunches parsnips
1 quart dressing or 1 pint vinegar

Trim, core, wash, clean, and quarter the cabbage and soak in salted water for 1 hour. Clean, trim, wash, and dice celery, soak in cold water until ready to use. Just before serving, remove cabbage from the water and shake. Shred or chop fine and place in a large bowl with the diced celery, then pour over it the dressing or vinegar. Mix well. Place in vegetable dishes and cover with minced parsley and serve cold.

304. Cabbage and apple salad

15 pounds cabbage
1 quart mayonnaise
5 pounds apples

Prepare the cabbage as in cabbage salad (recipe 303). Wash, peel, and core the apples and place in cold water until just before serving. At that time remove and chop fine and shred the cabbage. Mix the cabbage, apples, and mayonnaise, and salt to taste. Serve individually on lettuce leaves or in vegetable dishes garnished with lettuce leaves.

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305. Celery salad

15 pounds celery, trimmed
15 eggs
4 pounds potatoes, mashed
2 pounds bacon grease or cooking oil
1 pint vinegar
1 pint water
2 ounces mustard, prepared
5 heads lettuce

Dice the celery fine, and let stand in cold water. Hard boil the eggs, chop fine, and mix with the diced celery. Make a dressing as follows: Mash the potatoes, mix in slowly the bacon grease (or cooking oil) with the vinegar and water. Then mix in the mustard and a little red pepper and salt to taste. The dressing should be of the consistency of cream or gravy. Regulate the quantity of water to get this result. Pour the dressing over the celery-and-egg mixture and serve cold on dishes garnished with lettuce leaves.

306. Chicken salad

30 pounds chicken (fowl)
12 pounds celery, trimmed
2 quarts dressing
5 heads lettuce

Prepare the chicken as for chicken stew (receipt 81). Simmer until so tender that the meat may be easily separated from the bones. Be careful to avoid leaving any bones with the meat. Dice the meat when cold, add the diced celery, and mix with the mayonnaise. Season to taste with salt and pepper and garnish with a little paprika sprinkled over the top. Serve cold on lettuce leaves.

The above is sufficient for a main dish. To serve as a salad the quantity of ingredients may be cut in half.

If desired, veal may be substituted for one-half the chicken. If simmered with the chicken the veal will take on a chicken flavor.

307. Cucumber and onion salad

25 pounds cucumbers
8 pounds onions, sliced
1 quart vinegar
Salt and pepper to taste

Peel the cucumbers and slice thin, cover with salted cold water, and allow to stand for 2 hours. Drain, add the onions and vinegar and season to taste with salt and pepper.

308. Lettuce salad

13 heads lettuce, medium size
12 eggs, hard boiled, minced fine
2 pounds bacon, diced and browned
1 quart vinegar
2 ounces mustard, prepared

Wash and clean the lettuce thoroughly and cut into eighths. Soak in cold water about 1 hour. Mix the bacon, mustard, minced eggs, vinegar, and a little pepper and salt, and pour over the lettuce when cold. Serve ice cold. Lettuce may also be cut into eighths and served with thousand island dressing.

309. Piccalilli salad

5 pounds cabbage, minced
5 quarts tomatoes, minced, or 4 no. 3 cans, or 1 no. 10 can
5 pounds onions, minced
5 pounds pickles, sweet, minced
1 quart vinegar
1 teaspoonful cloves, ground

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Mix all the ingredients well, season with salt, cayenne pepper, and cloves, and add sufficient water to make 3½ gallons. Regulate the quantity of water to make the consistency like thick gravy.

310. Pimento salad

5 cans pimentos, 1-pound cans
14 pounds cabbage
2 pounds celery, diced
5 heads lettuce
2 pounds pickles, sweet
1 quart mayonnaise dressing

Prepare the cabbage as in cabbage salad (recipe 303), select one-fourth of the pimentos best suited for the purpose and slice them into fine cords like shoe strings. Chop fine remaining pimentos and pickles. Remove the cabbage from the water, shake, shred, and mix with the chopped pimentos, diced celery, chopped pickles, and the mayonnaise. Serve cold on lettuce leaves.

311. Potato salad

25 pounds potatoes, boiled and diced
5 pounds celery, diced
2 pounds onions, minced
2 pounds bacon, diced and browned
1 can pimentos, or 4 green peppers, diced
½ pint vinegar
1 quart mayonnaise
1 head lettuce or parsley

Place the potatoes in a chopping bowl with the onions and celery over them. Fry the bacon until brown and while still hot pour over the potatoes. Add the vinegar, mayonnaise, and pimentos or peppers mixed together. Mix well and season with pepper and salt to taste. Allow to stand for 2 hours, then serve cold in dishes garnished with lettuce or parsley.

312. Raw vegetable salad

6 heads lettuce (medium size)
1 pound carrots, sliced and chopped fine
2 pounds green pepper, chopped fine
4 bunches radishes, sliced
2 pounds cucumbers, diced
2 pounds celery, diced
4 pounds cabbage, grated
1 pint mayonnaise
½ pint vinegar
2 pounds tomatoes

Chop fine 3 heads of lettuce, add rest of the ingredients, salt and pepper to taste. Serve cold in dishes garnished with the 3 remaining heads of lettuce.

313. Salmon salad

12 cans salmon, 1-pound cans
2 pounds celery, diced
10 pounds potatoes, boiled and diced
3 heads lettuce
1 gallon mayonnaise dressing
3 green peppers
6 lemons

Cool the cans of salmon and empty contents into a mixing bowl. Be sure to add all the oil in the can. Chop salmon fine and mix with the potatoes. Soak the diced celery in cold water for 1 hour, chop up the green peppers and add to the mixture. Add the mayonnaise and thoroughly mix. Garnish with sprigs of parsley or lettuce and serve cold on lettuce leaves with the lemons cut in thin slices and laid across the top of the salad.

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314. Slaw (cole slaw)

20 pounds cabbage
4 pounds bacon, diced and browned
1 quart vinegar
6 pounds onions, chopped fine
2 pounds sugar

Wash the cabbage thoroughly and shred or chop fine. Mix thoroughly the onions, bacon, vinegar, and sugar. Season to taste with pepper and salt and bring to a boil. Remove from the fire and pour over the chopped cabbage. Serve hot or cold.

315. Tomatoes, sliced

30 pounds tomatoes

Wash the tomatoes well and trim away discolored or bruised spots. Place in the refrigerator until thoroughly chilled, then slice thin or cut into eighths and replace in the refrigerator until required. Place sliced tomatoes on lettuce and serve plain or with dressing (recipe 317) over both.

316. Vegetable salad

17 pounds vegetables, cooked, consisting of:
5 pounds carrots
5 pounds peas
5 pounds string beans
2 pounds cucumbers, sliced, or celery, diced, or radishes, diced

Nearly any kind of left-over cooked vegetables may be used in making salads by seasoning them with mustard, vinegar, or mayonnaise or french dressing. Serve ice cold on dishes garnished with lettuce leaves.

317. Boiled dressing

3 eggs
¼ pound butter
¼ pound sugar
1 gallon water
1 pint vinegar
½ ounce mustard, dry
1 pound flour
1 pint milk (approximately)
Salt and cayenne pepper to taste

Put mustard, salt, sugar, and cayenne pepper into a kettle, pour over the vinegar, and heat to near boiling point. Rub the flour and butter together and add to the hot mixture. Beat the eggs, add the water, and let cook until like prepared mustard, add milk until right consistency.

This dressing may be used as a base, instead of mayonnaise, to make other dressings such as tartare sauce, thousand island, cucumber mayonnaise, etc.

318. French dressing

½ teaspoonful paprika
6 teaspoonfuls salt
½ teaspoonful pepper, white
6 teaspoonfuls sugar
2½ pints cooking or salad oil
1 pint vinegar

Put the salt, pepper, paprika, sugar, and vinegar in a dish and beat thoroughly, then add slowly the oil, beating continuously. This dressing should not be poured over the salad until immediately before serving. A lemon dressing may be made by substituting 1 pint juice of fresh lemons for the vinegar.

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319. Mayonnaise dressing

6 eggs
1 gallon salad oil
8 tablespoonfuls vinegar
2 tablespoonfuls mustard
Salt and cayenne pepper to taste

First, every utensil used should be chilled or cooled. Break open the eggs into a mixing bowl and add the cayenne pepper, salt, and mustard. Work it in until it is thoroughly mixed. Begin dropping in the oil, stirring constantly in the same direction, putting in only a few drops at first. When it begins to thicken, drop in a few drops of vinegar, then the oil again, a very little. Continue this until all of the materials are used. Be careful not to use too much vinegar as this makes it thin. It should be thick enough to drop when ready for use.

320. Mayonnaise dressing, fruit salad

Add 3 or 4 cups of whipped cream to mayonnaise dressing (recipe 319).

321. Mustard salad dressing

1 pound butter
2 pounds flour
¼ pound mustard, dry
1¾ gallons water
¼ gallon vinegar

Melt the butter in a double boiler, stir in the flour and mustard and cook until smooth. Reduce it with the vinegar and water to the desired thickness. Serve when cold.

322. Russian mayonnaise

Add 2 cups chili sauce and 2 cups green pepper, chopped, to mayonnaise dressing (recipe 319).

323. Salad dressing, eggless

6 ounces sugar
4 ounces salt
1 ounce mustard, dry
1 teaspoonful paprika
¾ pint vinegar
2¼ pints salad oil
3 pints water, cold
6 ounces cornstarch

Place the sugar, salt, mustard, paprika, vinegar, and salad oil in a mixing bowl but do not stir. Make a paste by mixing the cornstarch with half the water, then add the other half of the water. Cook the paste over a slow fire, stirring constantly until it boils and becomes clear. Then add the hot paste to the other ingredients in the mixing bowl and beat briskly with an egg beater or wire whip until smooth. Chill before serving.

324. Sour cream dressing

1½ pints vinegar
1 quart milk, fresh; or 1 can evaporated milk diluted with 1 pint water
½ pint salad oil, or 8 ounces melted butter
3 teaspoonfuls salt
¼ teaspoonful pepper, cayenne
6 tablespoonfuls sugar
4 teaspoonfuls mustard, dry

Add the vinegar to the milk, then the oil, then all other ingredients, stirring briskly with a wire beater. Keep cold.

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325. Tartare mayonnaise

Add 2 cups sour pickles, chopped, 1 cup stuffed olives, chopped, and 1 cup parsley, chopped, to mayonnaise dressing (recipe 319).

326. Tomato french dressing

2 cans soup, tomato, no. 1 cans
1½ pints salad oil, or olive oil
½ pint vinegar
½ pound sugar
½ ounce onion juice, or ½ pound onions, finely minced
1 ounce salt
¼ ounce mustard, dry
⅛ ounce paprika

Mix the ingredients in the order given in an electric mixer or whip by hand. Serve cold.

327. Thousand island dressing

1 gallon mayonnaise dressing, or boiled dressing
1 quart tomato catsup or chili sauce
1 pint pickles, chopped, or sweet relish
1 cup horseradish, grated (if available)

Mix the above ingredients thoroughly. One-half pint chopped green olives improves the dressing.

BEVERAGES

328. Cocoa or chocolate

3 pounds cocoa, or 2½ pounds chocolate, plain
5 pounds sugar
32 cans milk, evaporated

Put 8 gallons of water into an urn or boiler and bring to a boil. Take out 1 gallon of the hot water and dissolve the cocoa and sugar in this. If chocolate is used, first melt it in a double boiler. Then add to the remainder of the hot water and cook 5 minutes. Reduce the heat and add the milk, and stir well. Water may be used in place of milk, but this reduces the palatability.

In hot weather, iced cocoa is popular.

329. Coffee, hot

12½ gallons water, cold
5 pounds coffee, roasted and ground

Bring the water to a boil. Move container to back of stove in order to reduce temperature of water slightly under the boiling point. Place roasted and ground coffee in sugar interliner bag, or other similar bag, and tie same with cord, leaving sufficient room in the bag to permit expansion of the coffee. Place the bag containing the coffee in water, when water is slightly under boiling point, and allow to simmer, not boil, for 10 to 12 minutes. Stir the bag occasionally during the simmering period. Remove the bag. Serve at once.

Observe the following rules to insure good coffee:

a. Keep roasted and ground coffee in a container as airtight as possible.

b. Carefully measure quantities of both water and coffee.

c. When grounds are removed from coffee, throw them away. Do not use these grounds to make additional quantities of coffee, and do not use part spent grounds and part unused grounds for subsequent brews. Always use fresh (unused) ground coffee.

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d. Be sure to bring water to a boil, but do not add coffee to water until the water has cooled slightly below the boiling point.

e. Serve the coffee as soon as possible after completion of brew. The brew should not be completed more than 15 minutes prior to time of serving.

f. Scour the coffee boiler daily.

g. After removing grounds from muslin bag or sack, the sack should be washed in lukewarm, not hot, water, thoroughly rinsed in cold water, and then permitted to remain submerged in a pan of cold water until ready to use again.

330. Lemonade

13 gallons ice water
7 pounds sugar
100 lemons
10 pounds ice

Squeeze the juice from the lemons with a lemon squeezer and add it to the water. Sweeten to taste with sugar and stir thoroughly before serving. Serve cold.

331. Tea, hot and iced

Hot tea	*Cold tea*
7 gallons water, fresh	1 gallon water
10½ ounces tea	15 ounces tea
	18 lemons, or left-over lemonade to taste
	9 gallons water

Hot tea.—Bring the water to a boil, remove from the range. Suspend the tea from the top of the boiler in a muslin bag and allow to stand in the hot water for 5 minutes. The bag should be sufficiently large to give the tea plenty of room so that the boiling water will penetrate all portions of it. Remove the bag of tea, stir the beverage, and serve hot.

Iced tea.—Use 1 gallon of water and 15 ounces of tea and prepare as for hot tea. Cool and just before serving add sufficient cold water to make 10 gallons. The juice of 18 lemons may be added, if desired. Any left-over lemonade may be added to the iced tea.

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APPENDIX II

TABLES AND USEFUL INFORMATION

	Paragraph
Weights and measures	1
Equivalent weights and measures, spoons, cups, etc	2
Boiling point of water under various pressures	3
Table of oven temperatures as determined by hand-second counts	4
Oven counts and oven temperatures	5
Soap, making	6
Window washing	7
Separation and disposal of kitchen waste and garbage	8

1. **Weights and measures.**—*a. Avoirdupois weight.*

16 ounces equal 1 pound.
100 pounds equal 1 hundredweight.
20 hundredweight equal 1 ton.

b. Dry measure.

2 pints equal 1 quart.
8 quarts equal 1 peck.
4 pecks equal 1 bushel.

c. Liquid measure.

4 gills equal 1 pint.
2 pints equal 1 quart.
4 quarts equal 1 gallon.
31½ gallons equal 1 barrel.
2 barrels equal 1 hogshead.

d. Miscellaneous weights.

(1) 10 eggs, average size without shell, weigh 1 pound.

(2) Each of the following equals approximately 1 bushel:

48 pounds apples.
50 pounds carrots.
58 pounds onions, dry.
45 pounds parsnips.
60 pounds potatoes, irish.
54 pounds potatoes, sweet.
56 pounds tomatoes, fresh.
55 pounds turnips.
70 pounds corn on the cob.

(3) The cup, which is part of the individual equipment of each soldier, will be found very convenient for determining quanities. The cup holds 1½ liquid pints.

1 level cupful of—	Pounds	Ounces	1 level cupful of—	Pounds	Ounces
Apples, evaporated	0	7	Oatmeal	0	8
Beans, chili	1	4	Peaches, evaporated	0	14
Beans, issue	1	6	Peas, dried	1	0
Beans, kidney	1	3	Prunes	0	14
Beans, lima	1	3	Raisins	0	14
Bread crumbs	0	13	Rice	1	0
Coffee, R. & G	0	9	Salt, coarse	1	1
Corn, sweet, dried	0	14	Salt, issue	1	1
Corn meal	1	2	Sirup	2	0
Currants	1	5	Sugar, cut-loaf	0	1
Eggs, broken	1	11	Sugar, granulated	1	0
Flour	0	14	Tea, black	0	0
Hominy	1	2	Tea, oolong	0	0
Milk, fresh	1	9	Tea, green	0	0

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One 3-gallon bucket of potatoes weighs 17 pounds, and when peeled they will weigh about 15 pounds.

One 3-gallon bucket of onions weighs about 14 pounds, and when peeled they will weigh about 11 pounds.

(4) The no. 55 (2-quart size) dipper, level full, holds the following:

	Pounds		*Pounds*
Apples, evaporated	1¼	Oil, cottonseed, etc	3¾
Beans, dry	2½	Peaches, evaporated	2
Coffee, ground	2	Prunes	2
Corn meal	2¾	Raisins	2
Fat (butter or lard)	3¾	Rice	3¼
Flour or cornstarch	2	Sugar	3½
Oats, rolled	1¼	Tea	1

(5) The no. 56 (1-quart size) dipper holds one-half as much as the no. 55.

2. Equivalent weights and measures, spoons, cups, etc.—See par. 3, Appendix I.

Volume[1]							Weight		
Level teaspoonful	Rounding teaspoonful	Heaping teaspoonful	Level tablespoonful	Cupful	Pint	Quart	Flour	Granulated sugar	Shortening
1							1/12 oz.	1/6 oz.	1/6 oz.
2	1						1/6 oz.	1/3 oz.	1/3 oz.
3			1	1/16			1/4 oz.	1/2 oz.	1/2 oz.
4	2	1					1/3 oz.	2/3 oz.	2/3 oz.
6	3		2	1/8	1/16		1/2 oz.	1 oz.	1 oz.
	6	3	4	1/4	1/8	1/16	1 oz.	2 ozs.	2 ozs.
		6	8	1/2	1/4	1/8	2 ozs.	4 ozs.	4 ozs.
			16	1	1/2	1/4	4 ozs.	8 ozs.	8 ozs.
				2	1	1/2	8 ozs.	1 lb.	1 lb.
				3	1½	¾	12 ozs.	1½ lbs.	1½ lbs.
				4	2	1	1 lb.	2 lbs.	2 lbs.

[1] Where teaspoon, tablespoon, or cup is referred to, it means standard measuring spoon or cup.

A cupful, teaspoonful, etc., mean level measure. Draw a knife across the top of the measure when filled so that the surface is level.

To measure one-half teaspoon or tablespoon, fill the measure level and cut across the center lengthwise. For quarters, cut another line directly across the center of the first one.

In measuring flour sift before measuring and do not pack it down in the container. In measuring salt, sugar, or like products which have become lumpy, break up the lumps before measuring.

3. Boiling point of water under various pressures.—The following table shows approximate temperatures possible to attain with pressure cookers:

	Temperature
1.5 pounds of pressure	217° F.
3.5 pounds of pressure	222° F.
5 pounds of pressure	230° F.
10 pounds of pressure	240° F.
15 pounds of pressure	250° F.

NOTE.—Since temperatures attained with use of pressure cooker are high, as indicated above, the cooking time is proportionately shortened.

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4. Table of oven temperatures as determined by hand-second counts.

	First counts for searing	Counts for cooking after searing	Time
Meats:			
Beef roast, 5-pound pieces	10	18	20 minutes per pound.
Mutton roast, 5-pound pieces	12	20	20 minutes per pound.
Pork roast, 5-pound pieces	15	20	30 minutes per pound.
Veal roast, 5-pound pieces	12	18	30 minutes per pound.

	Counts	Time
Fowl:		
Turkey roast, 12 pounds each	18	20 minutes per pound.
Chicken roast, 3 pounds each	18	30 minutes per pound.
Duck roast, 3 pounds each	18	30 minutes per pound.
Salmon hash	16	15 minutes per pound.
Vegetables:		
Beans, dry	22	6 to 8 hours.
Carrots, according to size	16	20 minutes.
Parsnips, according to size	18	40 to 60 minutes.
Potatoes, baked, according to size	12	30 to 40 minutes.
Potatoes, browned	15	20 to 30 minutes.
Potatoes, cheesed	12	30 minutes.
Potatoes, hashed	12	30 minutes.
Potatoes, lyonnaise	12	15 to 30 minutes.
Potatoes, sweet, according to size	16	40 to 60 minutes.
Squash, according to size	18	30 to 40 minutes.
Breads:		
Braided bread, 2-ounce	14	20 to 25 minutes.
Cinnamon rolls, 2-ounce	12	10 to 15 minutes.
Jenny linds, 16-ounce	20	30 to 40 minutes.
Muffins, 2-ounce	15	20 to 30 minutes.
Parkerhouse rolls, 2-ounce	12	10 to 15 minutes.
Raisin buns, 2-ounce	18	35 to 40 minutes.
Sandwich buns, 2-ounce	12	10 to 15 minutes.
Tea buns, 2-ounce	18	35 to 40 minutes.
French bread, 18-ounce (13 inches long)	20	40 minutes.
Cakes:		
Apple, 16-ounce (6 by 10 inches)	15	20 to 30 minutes.
Coffee, 16-ounce (6 by 10 inches)	15	15 to 20 minutes.
Pies	12	30 to 40 minutes.
Pudding, bread	15	30 to 40 minutes.
Custard	16	20 to 30 minutes.

5. Oven counts and oven temperatures.

Counts	Degrees Fahrenheit	Common name for oven temperature
8	450 to 500	Hot.
9 to 12	400 to 450	Quick.
12 to 16	325 to 400	Medium.
16 to 18	250 to 325	Moderate.
18 to 20	200 to 250	Slow.

NOTE.—It must be remembered that an oven count will vary according to the individual and will also vary as the hand of the person making the count is sensitive or insensitive to heat. This is affected by the occupation of the man making the count. Cooks and others accustomed to working in heat are able to keep their hands in a hot oven longer than persons not accustomed to heat. Therefore, the only absolutely accurate method of determining oven temperature is by a thermometer. However, if no thermometer is available, the hand-second method will give fairly satisfactory results. (See par. 84.)

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6. Soap, making.—*a. Boiled hard soap.*—Dissolve 1 pound of soda lye (sodium hydroxide, ordinary issue lye) in 2 quarts of water. In another container (5-gallon capacity) melt 5 pounds of clean fat or tallow, scrap or drippings, in 2 gallons of water. As soon as all the fat is melted add about ¼ pint of the dissolved lye. Boil over a slow fire. Taste from time to time until the biting taste of the soap liquid has disappeared. Add water to replace that boiled away. Add another ¼ pint of lye as before and continue boiling, tasting, and adding lye and water in the same manner until the lye is consumed. The liquid will then become like honey in consistency and will be transparent as it drops from a spoon. Add about ½ pound of salt. Boil until the soap separates from the lye water, has lost its honeylike appearance, and drops off a spoon or wooden paddle like greasy water. A small quantity pressed between the thumb and first finger will not feel greasy but will flatten into thin scales if the soap is finished. Simmer about 10 minutes and the process is complete. Skim off the soap which floats on the surface, place in a suitable mold or molds and set aside to harden.

b. Soft soap.—Use 1 quart of the soap made according to the above formula but not hardened. Boil in a large kettle with 4 gallons of water until clear and uniform in appearance. Set aside to cool.

c. Inspection of soap.—(1) Cut a piece of soap in two and place the tongue on the fresh surface.

(*a*) If the soap is very sharp to the taste, not enough grease has been used.

(*b*) If the soap feels very greasy, too much grease has been used.

(*c*) If the soap tastes sharp and also feels greasy, it has not been mixed or boiled properly.

(2) A soap that is sharp to the taste and makes a good lather is much preferred for scrubbing purposes.

d. If the hard soap in process of setting is slightly soft and it appears that it will not harden, this difficulty may be overcome by attaching a short piece of rubber hose to the spout of an ordinary teakettle and placing the other end of the hose in the bottom of the soap kettle, thus introducing steam. In this way heat is obtained by using wet steam instead of the heat being applied to the bottom of the kettle. Available steam may also be drawn from boilers in lieu of the kettle method. A drier mixture and a harder soap result.

7. Window washing.—For efficient and economical window washing, to 1½ gallons of water add 1 tablespoonful of kerosene. Dampen a soft cloth in this mixture and use for cleaning. Then rub with a dry cloth which polishes as well as dries the window. When the drying cloth becomes old and worn it may be used as a washing cloth and replaced by a fresh one. When long, high windows are involved, and it is impracticable to wash by hand, the cloth may be attached to a handle with a crossbar at the end, similar to a squeegee. (The squeegee is simply a handle and a crossbar at the end, into which has been pressed a strip of hard rubber.) The use of the squeegee is not recommended, as it does not dry the windows thoroughly and requires the use of a drying cloth afterward. The above quantity of water and kerosene is usually sufficient for a day's work, but when the windows are very dirty or greasy a large quantity is necessary.

8. Separation and disposal of kitchen waste and garbage.—*a.* Proper garbage separation and disposal is necessary from a sanitary standpoint and also where it is to be used later for animal food. All kitchen waste and garbage not to be used by the organization should be separated into—

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(1) That which is suitable for animal food, as bread, meat scraps, and vegetables.

(2) That which is not suitable for animal food, as coffee grounds, egg shells, fruit rinds or skins, and also glass and tin containers, waste paper, and ashes.

b. Containers used for garbage accumulation should have tight-fitting covers and be leak-proof. There are various kinds of housings for garbage cans. They and the vicinity around them should be kept clean.

[A. G. 062.11 (6–5–35).]

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